SLAKEY BROTHERS, INC. POLICY AND PROCEDURE

TITLE:	**SAFETY DATA SHEETS**		
POLICY #:	**SB – HM 01**	APPROVED BY:	
POLICY ISSUED:	**6/1/92**	PAGE:	**1** OF **1**
POLICY REVISED:	**06/01/16**	DISTRIBUTION:	**MANUAL**
DOCUMENT AUTHORITY:	**COO**	AUTHOR:	**DEL MCCANN**
RESPONSIBLE PARTY (IES):	**LOGISTICS MANAGER**		

1.0 POLICY: SDS Guidelines

2.0 OBJECTIVE: To comply with federal regulations.

3.0 RELATED DOCUMENTS:

4.0 ATTACHMENTS:

5.0 PROCEDURE:

5.1 Effective 06/01/16, all MSDS sheets were revised and are now called SDS sheets. We went through our product list and obtained new SDS sheets for all products. New binders are to replace the MSDS sheets that were previously located at each branch. Please see the bullet points below and contact the Logistics Manager if there are any questions.

- Every branch is receiving the SDS sheets for all hazardous items even if they don't carry them. This is just in case an item is special ordered and sent to a branch.
- These SDS sheets are to be located near where the product is stored and in the shipping office. Since most branches don't have a shipping office the branch office will suffice, but it must never be in a locked office. Everyone must have access to the SDS binder at all times.
- The binder has a tab for each product regardless of size. Ex. There is a tab for IPG P-68, but it doesn't reference 1/2PT, 1/4PT, GAL, etc.
- When an update is sent out the manager or designee is required to update every copy immediately. This could require an addition for a new item or the replacement of an outdated SDS sheet.
- If hazardous items are stored in multiple locations a separate SDS binder needs to be located in each "work area". This means if some product is at the will call counter and some is located in the warehouse a separate SDS binder is needed for each work area along with a third located in the office.
- This is Federal law and is required at all branches.
- If another binder is needed please contact General Services at ext. 10817.

03 16-20 02
19 pgs

SAFETY DATA SHEET

COPPERS

SECTION 1: IDENTIFICATION

Product Identifiers: Coppers

UNS Alloy Numbers C10100; C10200; C10300; C10400; C10700; C11000; C11400; C11500; C11600; C12200; C14420 and Revere Classic Copper™ and Revere Continental Bronze™

Intended Use of the Product: Manufacture of copper/copper alloy products for, but not limited to, architecture, automotive, building, consumer; electrical.

Name, Address, and Telephone of the Manufacturer: Revere Copper Products, One Revere Park, Rome, NY 13440

Emergency Telephone Number: 800-448-1776 or 315-338-2022

SECTION 2: HAZARDS IDENTIFICATION

Solid copper and copper alloys, in massive form (rod, plate, sheet, strip, bar), are not hazardous.

GHS-US Classification: Not classified

GHS-US Labeling: No labeling applicable

Hazards Not Otherwise Classified:
When processed by milling, grinding, welding, melting, sawing, brazing, burning or other similar processes the generated dust, fines, fume or mist may pose a hazard through inhalation, ingestion or by eye or skin contact.

- Fine particles or dust dispersed in the air may present a fire/explosion hazard.
- Exposure to fumes or dust may aggravate existing respiratory disease or dermatitis.
- This product contains components that are environmentally hazardous and small chips, turnings and dust from processing may be toxic to aquatic life.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Product Form: Mixture

Note: For exact composition of each UNS Alloy refer to alloy specifications

Chemical Name	CAS Number	% by Weight	Ingredient Classification (GHS-US)
Copper	7440-50-8	99.5 - 99.99	Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Tin	7440-31-5	< 0.15	Comb. Dust
Silver	7440-22-4	< 0.1	Comb. Dust STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Tellurium	13494-80-9	<0.05	Comb. Dust Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Sens. 1B, H317 STOT SE 3, H335 Aquatic Chronic 4, H413
Phosphorus elemental	7723-14-0	< 0.04	Not classified

SECTION 4: FIRST AID MEASURES

Solid copper and copper alloys in massive form (rod, plate, sheet, strip, bar), do not present inhalation, ingestion, eye contact or skin contact hazards. The information below relates to the dust, fines, fumes or mists generated by subsequent processing.

Description of First Aid Measures:

General: Never give anything by mouth to an unconscious person. If medical advice is needed, have this SDS at hand.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms develop seek medical attention.

Skin Contact: Do not rub. Wash with plenty of soap and water. Promptly treat cuts or abrasions by thorough cleaning of the affected area. Contact with hot or molten metal will cause thermal burns, cool rapidly and seek medical attention.

Eye Contact: Do not rub. Thoroughly flush eyes with water for at least 15 minutes, including under lids, to remove all particles. Seek immediate medical attention for abrasions or other injuries to the eye.

Ingestion: Rinse mouth. Drink water to dilute. Seek medical attention if symptoms develop or you feel ill.

Most Important Symptoms and Effects both Acute and Delayed:

Inhalation: Short term exposure to fumes or dust may produce irritation of the mucous membranes and respiratory system. Exposure to metal fumes can produce an acute allergic condition known as "metal fume fever". Symptoms may include chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude. The onset of symptoms may be delayed several hours and recovery generally occurs without intervention within 24 to 48 hours.

Skin Contact: Contact with fumes or metal powder may irritate skin. Contact with hot, molten metal will cause thermal burns. Injury from flying particles is possible.

Eye Contact: Short term exposure to fumes or dusts may cause eye irritation. Mechanical injury can result from particulate.

Ingestion: Ingestion of dust may cause nausea, vomiting, abdominal pain, metallic taste and diarrhea. Ingestion of large doses may cause stomach and intestine ulceration, jaundice and kidney or liver damage.

Indication of Any Immediate Medical Attention or Special Treatment Needed:

If you feel unwell, seek medical advice. Have this SDS available.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Solid products are not flammable or explosive, use extinguishing media appropriate for surrounding fire.
Use Class D extinguishing agents or dry sand on fires involving dust or fines.

Unsuitable Extinguishing Media: Do NOT use water on molten material, will react violently due to steam explosions.
Do NOT use water or halogenated extinguishing agents on fires involving dust or fines.

Specific Hazards Arising From Material: Dusts or fines may burn if they are ignited.
Fumes may contain oxides of copper and other ingredients.
Fine particles or dust dispersed in the air may present a fire/explosion hazard.
Use of water on molten material will cause steam explosions.

Special Protective Equipment and Precautions for Firefighters: Do not breathe fumes from fires or vapors from decomposition, wear self-contained NIOSH approved breathing apparatus. Wear full protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Not applicable to copper and copper alloys in the massive form. The information below relates to the dust or fines generated by processing.

Personal Precautions, Protective Equipment and Emergency Procedures: Avoid generation of airborne dust. Ensure adequate ventilation. Protect clean-up personnel from inhalation of dusts or fumes, or contact with eyes and skin.

Environmental Precautions: Do not flush dust or fines to surface waters, soil or sanitary sewer system.

Methods / Material for Containment and Clean Up: Dust and fines should be cleaned up avoiding generation of airborne particulates. Wash down with water if in contact with acids.

Reference to Other Sections : See Sec 8 and Sec 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: As sold in the massive form, copper and copper alloys pose no chemical handling hazard. Avoid contact with sharp edges, where proper gloves when handling.
Dust, fines, fume or mist generated by processing may pose a hazard through inhalation, ingestion and eye or by skin contact. Avoid breathing metal fumes and/or dust. Practice good housekeeping. Practice good hygiene. Avoid generating dusts. Eating, drinking or smoking should not be allowed in areas where these alloys are processed.

Conditions for Safe Storage: Other than incompatibles, no special storage conditions for copper in the massive form.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogens. Mercury.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate Engineering Controls: Use appropriate engineering controls to minimize exposure to airborne concentrations during chemical treatment, milling, grinding, welding, melting, sawing, brazing, burning or other similar processes.

Provide emergency eye wash fountains and safety showers in the immediate vicinity of any potential exposure.

Personal Protective Equipment: Highly dependent upon process being performed. User must review every process individually to evaluate appropriate PPE.
Do not eat, drink or smoke during processing operations.

Respiratory Protection: As appropriate for process and engineering controls in place.

Eye Protection: Safety glasses, chemical goggles or face shield as appropriate to process.

Hand Protection: Cut resistant gloves whenever handling. Chemically resistant gloves or thermally resistant gloves as appropriate to process.

Skin and Body Protection: Wear suitable protective clothing. With molten material wear thermally protective clothing.

Hygiene Measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Control Parameters
For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Copper (7440-50-8)		
Mexico	OEL TWA (mg/m^3)	0.2 mg/m^3 (fume) 1 mg/m^3 (dust and mist)
Mexico	OEL STEL (mg/m^3)	2 mg/m^3 (fume) 2 mg/m^3 (dust and mist)
USA ACGIH	ACGIH TWA (mg/m^3)	0.2 mg/m^3 (fume)
USA OSHA	OSHA PEL (TWA) (mg/m^3)	0.1 mg/m^3 (fume) 1 mg/m^3 (dust and mist)
USA NIOSH	NIOSH REL (TWA) (mg/m^3)	1 mg/m^3 (dust and mist) 0.1 mg/m^3 (fume)
USA IDLH	US IDLH (mg/m^3)	100 mg/m^3 (dust, fume and mist)
Alberta	OEL TWA (mg/m^3)	0.2 mg/m^3 (fume) 1 mg/m^3 (dust and mist)
British Columbia	OEL TWA (mg/m^3)	1 mg/m^3 (dust and mist) 0.2 mg/m^3 (fume)
Manitoba	OEL TWA (mg/m^3)	0.2 mg/m^3 (fume)
New Brunswick	OEL TWA (mg/m^3)	0.2 mg/m^3 (fume) 1 mg/m^3 (dust and mist)

Newfoundland & Labrador	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	0.6 mg/m³ (fume) 2 mg/m³ (dust and mist)
Nunavut	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Northwest Territories	OEL STEL (mg/m³)	0.6 mg/m³ (fume) 2 mg/m³ (dust and mist)
Northwest Territories	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Ontario	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Prince Edward Island	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Québec	VEMP (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³ (fume) 3 mg/m³ (dust and mist)
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Yukon	OEL STEL (mg/m³)	0.2 mg/m³ (fume) 2 mg/m³ (dust and mist)
Yukon	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)

Tin (7440-31-5)		
Mexico	OEL TWA (mg/m³)	2 mg/m³
Mexico	OEL STEL (mg/m³)	4 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	2 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
Alberta	OEL TWA (mg/m³)	2 mg/m³
British Columbia	OEL TWA (mg/m³)	2 mg/m³
Manitoba	OEL TWA (mg/m³)	2 mg/m³
New Brunswick	OEL TWA (mg/m³)	2 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	2 mg/m³
Nova Scotia	OEL TWA (mg/m³)	2 mg/m³
Ontario	OEL TWA (mg/m³)	2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	2 mg/m³
Québec	VEMP (mg/m³)	2 mg/m³
Saskatchewan	OEL STEL (mg/m³)	4 mg/m³
Saskatchewan	OEL TWA (mg/m³)	2 mg/m³

Tellurium (13494-80-9)		
Mexico	OEL TWA (mg/m³)	0.1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	0.1 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.1 mg/m³
USA IDLH	US IDLH (mg/m³)	25 mg/m³
Alberta	OEL TWA (mg/m³)	0.1 mg/m³
British Columbia	OEL TWA (mg/m³)	0.1 mg/m³
Manitoba	OEL TWA (mg/m³)	0.1 mg/m³
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.1 mg/m³

Nova Scotia	OEL TWA (mg/m³)	0.1 mg/m³
Nunavut	OEL STEL (mg/m³)	0.3 mg/m³
Nunavut	OEL TWA (mg/m³)	0.1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	0.3 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.1 mg/m³
Ontario	OEL TWA (mg/m³)	0.1 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.1 mg/m³
Québec	VEMP (mg/m³)	0.1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.3 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.1 mg/m³
Yukon	OEL STEL (mg/m³)	0.1 mg/m³
Yukon	OEL TWA (mg/m³)	0.1 mg/m³

Silver (7440-22-4)		
Mexico	OEL TWA (mg/m³)	0.1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	0.1 mg/m³ (dust and fume)
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.01 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.01 mg/m³ (dust)
USA IDLH	US IDLH (mg/m³)	10 mg/m³ (dust)
Alberta	OEL TWA (mg/m³)	0.1 mg/m³
British Columbia	OEL STEL (mg/m³)	0.03 mg/m³
British Columbia	OEL TWA (mg/m³)	0.01 mg/m³
Manitoba	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Nova Scotia	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Nunavut	OEL STEL (mg/m³)	0.3 mg/m³
Nunavut	OEL TWA (mg/m³)	0.1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	0.3 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.1 mg/m³
Ontario	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Prince Edward Island	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Québec	VEMP (mg/m³)	0.1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.3 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.1 mg/m³
Yukon	OEL STEL (mg/m³)	0.03 mg/m³
Yukon	OEL TWA (mg/m³)	0.01 mg/m³

Phosphorus (7723-14-0)		
Alberta	OEL TWA (mg/m³)	0.1 mg/m³ (yellow)
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m³ (yellow)
New Brunswick	OEL TWA (ppm)	0.02 ppm (yellow)
Québec	VEMP (mg/m³)	0.1 mg/m³ (yellow)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid	Appearance:	Reddish to dark brown
Odor:	Odorless	Odor Threshold:	Not applicable
pH:	Not applicable	Evaporation Rate:	Not applicable
Melting Point:	1083 °C (1981 °F)	Freezing Point:	1065 °C (1950 °F)
Boiling Point:	Not available	Boiling Point Range:	Not available
Flash Point:	Not applicable	Auto-ignition Temperature:	Not applicable
Flammability (solid, gas):	Not flammable	Decomposition Temperature:	Not applicable
Upper Flammable Limit:	Not applicable	Lower Flammable Limit:	Not applicable
Vapor Pressure:	Not applicable	Vapor Density at 20 °C:	Not applicable

Relative Density:	8.89 - 8.94 g/cm^3 @ 20 °C	Specific Gravity:	8.89 - 8.94
Solubility:	Negligible in water	Viscosity:	Not applicable
Explosion Data – Sensitivity to Mechanical Impact:	Not expected to present an explosion hazard due to mechanical impact	Explosion Data – Sensitivity to Static Discharge:	Not expected to present an explosion hazard due to static discharge
Partition Coefficient: N-Octanol/Water:	Not applicable		

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Stable at under normal conditions.

Chemical Stability: Stable under normal conditions of use and under recommended handling and storage conditions. (Section 7).

Possibility of Hazardous Reactions: Hazardous polymerization cannot occur.

Conditions to Avoid: Avoid creating or spreading dust. Incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogens. Mercury. Water (when in molten form)

Hazardous Decomposition Products: When heated to decomposition, may produce metal oxides and fumes. Contact with strong acids will release hydrogen gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure:

Solid copper and copper alloys in massive form (rod, plate, sheet, strip, bar), do not present inhalation, ingestion, eye or skin contact hazards.

When processed by milling, grinding, welding, melting, sawing, brazing, burning or other similar processes the generated dust, fines, fume or mist may pose a hazard through inhalation, ingestion or by eye or skin contact. Most likely exposure routes: For dust: ingestion, inhalation, skin and eye contact. For fume: inhalation and eye contact.

Symptoms/Injuries After Inhalation:	Metal fumes or dust may irritate the mucous membranes and respiratory tract (shortness of breath, wheezing, coughing) Metal fumes or dust can produce an acute allergic condition known as "metal fume fever". Symptoms of metal fume fever may include chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude. The onset of symptoms may be delayed several hours and recovery generally occurs without intervention within 24 to 48 hours.
Symptoms/Injuries After Skin Contact:	Dust or fines may irritate skin. Hot or molten metal will cause thermal burns. Mechanical injury from via flying particles and chipped slag is possible.
Symptoms/Injuries After Eye Contact:	Dust, fines or fumes may cause eye irritation. Hot or molten metal will cause thermal burns. Mechanical damage via flying particles and chipped slag is possible.
Symptoms/Injuries After Ingestion:	Ingestion of dusts or fines from processing can occur due to poor hygiene and may produce irritation of the gastrointestinal tract (nausea, vomiting, and diarrhea)

Chronic Symptoms:

Copper:	Overexposure to fumes may cause metal fume fever. Tissue damage of mucous membranes may follow chronic dust exposure.
Tin:	Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure to tin dusts and fume may result in "stannosis", a mild form of pneumoconiosis.
Silver:	Chronic skin contact or ingestion of silver dust, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.
Lead:	Chronic exposure to fumes and/or dust or ingestion of dust can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage. Other reported symptoms include

	polyneuritis, diminished vision and peripheral neuropathy, such as tingling or loss of feeling in fingers, arms & legs, gingival lead line; hypertension.

Information on Toxicological Effects – Product in Massive Form

Acute Toxicity:	Not available	**Germ Cell Mutagenicity:**	Not classified
LD50 and LC50 Data:	Not classified	**Teratogenicity:**	Not classified
Skin Corrosion/Irritation:	Not applicable	**Carcinogenicity:**	Not classified
Serious Eye Damage/Irritation:	Not classified	**Specific Target Organ Toxicity (Repeated Exposure):**	Not classified
pH:	Not applicable	**Reproductive Toxicity:**	Not classified
Respiratory or Skin Sensitization:	Not classified	**Specific Target Organ Toxicity (Single Exposure):**	Not classified
Aspiration Hazard:	Not classified		

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Tellurium (13494-80-9)	
LD50 Oral Rat	83 mg/kg
LC50 Inhalation Rat	> 2420 mg/m³ (Exposure time: 4 h)
ATE US (dust, mist)	1.50 mg/l/4h

Silver (7440-22-4)	
LD50 Oral Rat	> 2000 mg/kg

Phosphorus elemental (7723-14-0)	
LD50 Oral Rat	3.03 mg/kg
LD50 Dermal Rat	100 mg/kg
LC50 Inhalation Rat	4.3 mg/l (Exposure time: 1 h)

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity No additional information available

Copper (7440-50-8)	
LC50 Fish 1	<= 0.0068 (0.0068 - 0.0156) mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	0.0426 (0.0426 - 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC 50 Fish 2	0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Other Aquatic Organisms 2	0.031 (0.031 - 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

Silver (7440-22-4)	
LC50 Fish 1	0.00155 (0.00155 - 0.00293) mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 1	0.00024 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	0.0062 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])

12.2. Persistence and Degradability Not readily biodegradable.

12.3. Bioaccumulative Potential Not available

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Recycle all solid copper and copper alloy scrap. Dust, fines or powders should also be recycled or classified by an environmental professional and disposed of in accordance with all local, regional, national, provincial, territorial and international regulations.

Do not dispose of dust, fines and powders to surface waters or sanitary sewers

Packaging Disposal: Dispose of in accordance with all local, regional, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

In Accordance with DOT: Not regulated for transport

In Accordance with IMDG: Not regulated for transport

In Accordance with IATA: Not regulated for transport

In Accordance with TDG: Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

Tin (7440-31-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Tellurium (13494-80-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Silver (7440-22-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
RQ (Reportable Quantity, Section 304 of EPA's List of Lists):	1000 lb < 100 um CERCLA/SARA RQ CHANGE TITLE
SARA Section 313 - Emission Reporting	1.0 %

Phosphorus elemental (7723-14-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on the United States SARA Section 302	
Listed on United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	100 (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)
SARA Section 313 - Emission Reporting	1.0 % (yellow or white)

15.2. US State Regulations

Copper (7440-50-8)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Tin (7440-31-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Tellurium (13494-80-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Silver (7440-22-4)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Phosphorus elemental (7723-14-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Lead (7439-92-1)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.

Nickel (7440-02-0)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

15.3. Canadian Regulations

Copper and Copper Alloys	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Copper (7440-50-8)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Tin (7440-31-5)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Tellurium (13494-80-9)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Silver (7440-22-4)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Phosphorus elemental (7723-14-0)
Listed on the Canadian DSL (Domestic Substances List)
Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1 %	
WHMIS Classification	Class B Division 4 - Flammable Solid Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

GHS Full Text Phrases:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 4	Hazardous to the aquatic environment - Chronic Hazard Category 4
Comb. Dust	Combustible Dust
Skin Sens. 1B	Skin sensitization Category 1B
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
	May form combustible dust concentrations in air
H301	Toxic if swallowed
H317	May cause an allergic skin reaction
H332	Harmful if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

Party Responsible for the Preparation of This Document
Revere Copper Products, Inc
One Revere Park Rome, NY
T: 800-448-1776 or 315-338-2022

Revision Date: 5/31/2015

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Revere Copper Products, Inc. based on our current knowledge, believes the information contained herein to be accurate and reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product. Final determination of occupational safety and health and environmental compliance and suitability of this material is the sole responsibility of the user.

13 Rainbuster
12 pgs.

RAIN BUSTER

Safety Data Sheet
RainBuster 900 Stone

1. Identification

Product identifier used on the label

RainBuster 900 Stone

Recommended use of the chemical and restriction on use

Recommended use*: for industrial and professional users

* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
Top Industrial, Inc.
15010 Keswick St.
Van Nuys, CA 91405

Telephone: 1-818-901-1313

Emergency telephone number

CHEMTREC: 1-800-424-9300

Other means of identification

Chemical family: sealant

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (Inhalation - vapour)	Acute toxicity
Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
Resp. Sens.	1	Respiratory sensitization
Skin Sens.	1	Skin sensitization
Carc.	2	Carcinogenicity
STOT RE	1	Specific target organ toxicity — repeated exposure

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H332	Harmful if inhaled.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs (Central nervous system) through prolonged or repeated exposure.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe dust/gas/mist/vapours.
P201	Obtain special instructions before use.
P261	Avoid breathing vapours.
P202	Do not handle until all safety precautions have been read and understood.
P284	[In case of inadequate ventilation] wear respiratory protection.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P314	Get medical advice/attention if you feel unwell.
P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311	If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P362 + P364	Take off contaminated clothing and wash before reuse.
P337 + P311	If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Labeling of special preparations (GHS):
SENSITIZATION CAN OCCUR IN SOME INDIVIDUALS, LEADING TO ASTHMA-LIKE SPASMS OF THE BRONCHIAL TUBES AND DIFFICULTY BREATHING. INDIVIDUALS WITH A HISTORY OF RESPIRATORY ILLNESS, ASTHMATIC CONDITIONS, EYE DAMAGE OR TDI SENSITIZATION SHOULD NOT BE EXPOSED TO THIS PRODUCT. TDI IS INCLUDED IN THE NTP ANNUAL REPORT ON CARCINOGENS. RESULTS FROM A TDI HEALTH STUDY INDICATE THAT OVEREXPOSURE TO A RESPIRATORY IRRITANT, RESULTING IN LOWER RESPIRATORY TRACT SYMPTOMS COULD INCREASE THE RISKS OF DEVELOPING ASTHMA-LIKE REACTIONS FROM SUBSEQUENT TDI EXPOSURE. ANIMAL TESTS AND OTHER RESEARCH INDICATE THAT SKIN CONTACT WITH MDI MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

WARNING:
SENSITIZATION CAN OCCUR IN SOME INDIVIDUALS, LEADING TO ASTHMA-LIKE SPASMS OF THE BRONCHIAL TUBES AND DIFFICULTY BREATHING. INDIVIDUALS WITH A HISTORY OF RESPIRATORY ILLNESS, ASTHMATIC CONDITIONS, EYE DAMAGE OR TDI SENSITIZATION SHOULD NOT BE EXPOSED TO THIS PRODUCT. TDI IS INCLUDED IN THE NTP ANNUAL REPORT ON CARCINOGENS. RESULTS FROM A TDI HEALTH STUDY INDICATE THAT OVEREXPOSURE TO A RESPIRATORY IRRITANT, RESULTING IN LOWER RESPIRATORY TRACT SYMPTOMS COULD INCREASE THE RISKS OF DEVELOPING ASTHMA-LIKE REACTIONS FROM SUBSEQUENT TDI EXPOSURE.
Irritating to eyes, respiratory system and skin.
CONTAINS MATERIAL WHICH MAY CAUSE CANCER.
Avoid contact with the skin, eyes and clothing.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
1317-65-3	>= 15.0 - < 20.0 %	Limestone
13463-67-7	>= 3.0 - < 5.0 %	Titanium dioxide
14807-96-6	>= 3.0 - < 5.0 %	talc
1305-78-8	>= 1.0 - < 3.0 %	calcium oxide
8052-41-3	>= 1.0 - < 3.0 %	Stoddard solvent
91-08-7	>= 0.3 - < 1.0 %	toluene-2,6-diisocyanate
2530-83-8	>= 0.3 - < 1.0 %	trimethoxy(3-(oxiranylmethoxy)propyl)silane
584-84-9	>= 0.03 - < 0.04 %	toluene-2,4-diisocyanate

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
1317-65-3	>= 15.0 - < 20.0 %	Limestone
13463-67-7	>= 3.0 - < 5.0 %	Titanium dioxide
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2530-83-8	>= 0.3 - < 1.0 %	trimethoxy(3-(oxiranylmethoxy)propyl)silane
584-84-9	>= 0.037 - < 0.04 %	toluene-2,4-diisocyanate

4. First-Aid Measures

Description of first aid measures

General advice:
First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:
No applicable information available.

If on skin:
Wash thoroughly with soap and water. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth and then drink plenty of water. Do not induce vomiting unless told to by a poison control center or doctor.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
Hazards: No applicable information available.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
For small amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.
For large amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Precautions for safe handling
Avoid contact with the skin, eyes and clothing.

Protection against fire and explosion:
Keep away from sources of ignition - No smoking. The relevant fire protection measures should be noted.

Conditions for safe storage, including any incompatibilities
No applicable information available.

Further information on storage conditions: Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight. Store protected against freezing.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

toluene-2,6-diisocyanate	ACGIH TLV	TWA value 0.005 ppm ; STEL value 0.02 ppm ;
toluene-2,4-diisocyanate	OSHA PEL	CLV 0.02 ppm 0.14 mg/m3 ; TWA value 0.005 ppm 0.04 mg/m3 ; STEL value 0.02 ppm 0.15 mg/m3 ;
	ACGIH TLV	TWA value 0.005 ppm ; STEL value 0.02 ppm ;
calcium oxide	OSHA PEL	PEL 5 mg/m3 ; TWA value 5 mg/m3 ;
	ACGIH TLV	TWA value 2 mg/m3 ;

Limestone	OSHA PEL	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 15 mg/m3 Total dust ; TWA value 5 mg/m3 Respirable fraction ;
Titanium dioxide	OSHA PEL	PEL 15 mg/m3 Total dust ; TWA value 10 mg/m3 Total dust ;
	ACGIH TLV	TWA value 10 mg/m3 ;
talc	OSHA PEL	TWA value 20 millions of particles per cubic foot of air ; TWA value 2.4 millions of particles per cubic foot of air Respirable ; The exposure limit is calculated from the equation, 250/(%SiO2+5), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.1 mg/m3 Respirable ; The exposure limit is calculated from the equation, 10/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.3 mg/m3 Total dust ; The exposure limit is calculated from the equation, 30/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 2 mg/m3 Respirable dust ; TWA value 0.3 mg/m3 Total dust ; The exposure limit is calculated from the equation, 30/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.1 mg/m3 Respirable ; The exposure limit is calculated from the equation, 10/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 2.4 millions of particles per cubic foot of air Respirable ; The exposure limit is calculated from the equation, 250/(%SiO2+5), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 20 millions of particles per cubic foot of air ;
	ACGIH TLV	TWA value 2 mg/m3 Respirable fraction ; The value is for particulate matter containing no asbestos and <1% crystalline silica.
Stoddard solvent	OSHA PEL	PEL 500 ppm 2,900 mg/m3 ;
	ACGIH TLV	TWA value 100 ppm ;

Advice on system design:
Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:
No applicable information available.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Safety glasses with side-shields.

Body protection:
Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. No special measures necessary if stored and handled correctly. Handle in accordance with good building materials hygiene and safety practice. Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	paste	
Odour:	mild	
Odour threshold:		No applicable information available.
Colour:	tan to brown	
pH value:		neutral
Melting point:		No applicable information available.
Boiling point:		No applicable information available.
Sublimation point:		No applicable information available.
Flash point:		Non-flammable.
Flammability:	not flammable	(UN Test N.1 (ready combustible solids))
Lower explosion limit:		No applicable information available.
Upper explosion limit:		No applicable information available.
Autoignition:		No applicable information available.
Vapour pressure:		The product has not been tested.
Density:	approx. 10.1 lb/USg	(25 °C)
Relative density:		No applicable information available.
Vapour density:		No applicable information available.
Partitioning coefficient n-octanol/water (log Pow):		No applicable information available.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:		No applicable information available.
Viscosity, kinematic:		No applicable information available.
Solubility in water:		(15 °C) insoluble
Miscibility with water:		(15 °C) not (e.g. <10%)
Solubility (quantitative):		No applicable information available.
Solubility (qualitative):	No applicable information available.	
Evaporation rate:		No applicable information available.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is stable if stored and handled as prescribed/indicated.

Conditions to avoid
See MSDS section 7 - Handling and storage.

Incompatible materials
strong acids, strong bases, strong oxidizing agents, strong reducing agents

Hazardous decomposition products

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Of very high toxicity after short-term inhalation. Of low toxicity after single ingestion.

Oral
Type of value: ATE
Value: > 5,000 mg/kg

Inhalation
Type of value: ATE
Value: 14.8 mg/l
Determined for vapor

Dermal
Type of value: ATE
Value: > 5,000 mg/kg

Assessment other acute effects
No applicable information available.

Irritation / corrosion

Assessment of irritating effects: The product has not been tested. The statement has been derived from the properties of the individual components.

Sensitization
Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: Prolonged exposure may cause chronic effects.

Genetic toxicity
Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, a mutagenic effect could not be confirmed in mammalian cell culture.

Carcinogenicity
Assessment of carcinogenicity: Contains a compound classified as IARC Group 2B (possibly carcinogenic to humans).

Information on: Titanium dioxide
Assessment of carcinogenicity: IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans). In long-term studies in rats in which the substance was given by inhalation, a carcinogenic effect was observed. Tumors were only observed in rats after chronic inhalative exposure to high concentrations which caused sustained lung inflammation. In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. Dermal exposure is not expected to be carcinogenic.

Information on: toluene-2,6-diisocyanate
Assessment of carcinogenicity: IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).

Reproductive toxicity
Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Other Information
Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Poorly biodegradable.
The product is unstable in water. The elimination data also refer to products of hydrolysis.

Assessment biodegradation and elimination (H2O)

Information on: TDI

Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Mobility in soil

Assessment transport between environmental compartments
Adsorption to solid soil phase is not expected.

Additional information

Other ecotoxicological advice:
Acutely harmful for aquatic organisms. Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with local authority regulations. Do not discharge into drains/surface waters/groundwater.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

13 Rainbuster
12 pgs.

RAIN BUSTER

Safety Data Sheet
RainBuster 900 Stone

1. Identification

Product identifier used on the label

RainBuster 900 Stone

Recommended use of the chemical and restriction on use

Recommended use*: for industrial and professional users

*The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

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Telephone: 1-818-901-1313

Emergency telephone number

CHEMTREC: 1-800-424-9300

Other means of identification

Chemical family: sealant

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (Inhalation - vapour)	Acute toxicity
Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
Resp. Sens.	1	Respiratory sensitization
Skin Sens.	1	Skin sensitization
Carc.	2	Carcinogenicity
STOT RE	1	Specific target organ toxicity — repeated exposure

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H332	Harmful if inhaled.
H319	Causes serious eye irritation.
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H351	Suspected of causing cancer.
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Precautionary Statements (Prevention):

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P260	Do not breathe dust/gas/mist/vapours.
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P202	Do not handle until all safety precautions have been read and understood.
P284	[In case of inadequate ventilation] wear respiratory protection.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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P337 + P311	If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

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According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

WARNING:
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Irritating to eyes, respiratory system and skin.
CONTAINS MATERIAL WHICH MAY CAUSE CANCER.
Avoid contact with the skin, eyes and clothing.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

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2530-83-8	>= 0.3 - < 1.0 %	trimethoxy(3-(oxiranylmethoxy)propyl)silane
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4. First-Aid Measures

Description of first aid measures

General advice:
First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:
No applicable information available.

If on skin:
Wash thoroughly with soap and water. Under no circumstances should organic solvent be used. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth and then drink plenty of water. Do not induce vomiting unless told to by a poison control center or doctor.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
Hazards: No applicable information available.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon dioxide, carbon monoxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Use personal protective clothing. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
For small amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.
For large amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Precautions for safe handling
Avoid contact with the skin, eyes and clothing.

Protection against fire and explosion:
Keep away from sources of ignition - No smoking. The relevant fire protection measures should be noted.

Conditions for safe storage, including any incompatibilities
No applicable information available.

Further information on storage conditions: Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight. Store protected against freezing.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

toluene-2,6-diisocyanate	ACGIH TLV	TWA value 0.005 ppm ; STEL value 0.02 ppm ;
toluene-2,4-diisocyanate	OSHA PEL	CLV 0.02 ppm 0.14 mg/m3 ; TWA value 0.005 ppm 0.04 mg/m3 ; STEL value 0.02 ppm 0.15 mg/m3 ;
	ACGIH TLV	TWA value 0.005 ppm ; STEL value 0.02 ppm ;
calcium oxide	OSHA PEL	PEL 5 mg/m3 ; TWA value 5 mg/m3 ;
	ACGIH TLV	TWA value 2 mg/m3 ;

Limestone	OSHA PEL	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 15 mg/m3 Total dust ; TWA value 5 mg/m3 Respirable fraction ;
Titanium dioxide	OSHA PEL	PEL 15 mg/m3 Total dust ; TWA value 10 mg/m3 Total dust ;
	ACGIH TLV	TWA value 10 mg/m3 ;
talc	OSHA PEL	TWA value 20 millions of particles per cubic foot of air ; TWA value 2.4 millions of particles per cubic foot of air Respirable ; The exposure limit is calculated from the equation, 250/(%SiO2+5), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.1 mg/m3 Respirable ; The exposure limit is calculated from the equation, 10/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.3 mg/m3 Total dust ; The exposure limit is calculated from the equation, 30/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 2 mg/m3 Respirable dust ; TWA value 0.3 mg/m3 Total dust ; The exposure limit is calculated from the equation, 30/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 0.1 mg/m3 Respirable ; The exposure limit is calculated from the equation, 10/(%SiO2+2), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 2.4 millions of particles per cubic foot of air Respirable ; The exposure limit is calculated from the equation, 250/(%SiO2+5), using a value of 100% SiO2. Lower percentages of SiO2 will yield higher exposure limits. TWA value 20 millions of particles per cubic foot of air ;
	ACGIH TLV	TWA value 2 mg/m3 Respirable fraction ; The value is for particulate matter containing no asbestos and <1% crystalline silica.
Stoddard solvent	OSHA PEL	PEL 500 ppm 2,900 mg/m3 ;
	ACGIH TLV	TWA value 100 ppm ;

Advice on system design:
Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:
No applicable information available.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Safety glasses with side-shields.

Body protection:
Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. No special measures necessary if stored and handled correctly. Handle in accordance with good building materials hygiene and safety practice. Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	paste	
Odour:	mild	
Odour threshold:		No applicable information available.
Colour:	tan to brown	
pH value:		neutral
Melting point:		No applicable information available.
Boiling point:		No applicable information available.
Sublimation point:		No applicable information available.
Flash point:		Non-flammable.
Flammability:	not flammable	(UN Test N.1 (ready combustible solids))
Lower explosion limit:		No applicable information available.
Upper explosion limit:		No applicable information available.
Autoignition:		No applicable information available.
Vapour pressure:		The product has not been tested.
Density:	approx. 10.1 lb/USg	(25 °C)
Relative density:		No applicable information available.
Vapour density:		No applicable information available.
Partitioning coefficient n-octanol/water (log Pow):		No applicable information available.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:		No applicable information available.
Viscosity, kinematic:		No applicable information available.
Solubility in water:		(15 °C) insoluble
Miscibility with water:		(15 °C) not (e.g. <10%)
Solubility (quantitative):		No applicable information available.
Solubility (qualitative):	No applicable information available.	
Evaporation rate:		No applicable information available.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is stable if stored and handled as prescribed/indicated.

Conditions to avoid
See MSDS section 7 - Handling and storage.

Incompatible materials
strong acids, strong bases, strong oxidizing agents, strong reducing agents

Hazardous decomposition products

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Of very high toxicity after short-term inhalation. Of low toxicity after single ingestion.

Oral
Type of value: ATE
Value: > 5,000 mg/kg

Inhalation
Type of value: ATE
Value: 14.8 mg/l
Determined for vapor

Dermal
Type of value: ATE
Value: > 5,000 mg/kg

Assessment other acute effects
No applicable information available.

Irritation / corrosion

Assessment of irritating effects: The product has not been tested. The statement has been derived from the properties of the individual components.

Sensitization
Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: Prolonged exposure may cause chronic effects.

Genetic toxicity
Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, a mutagenic effect could not be confirmed in mammalian cell culture.

Carcinogenicity
Assessment of carcinogenicity: Contains a compound classified as IARC Group 2B (possibly carcinogenic to humans).

Information on: Titanium dioxide
Assessment of carcinogenicity: IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans). In long-term studies in rats in which the substance was given by inhalation, a carcinogenic effect was observed. Tumors were only observed in rats after chronic inhalative exposure to high concentrations which caused sustained lung inflammation. In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. Dermal exposure is not expected to be carcinogenic.

Information on: toluene-2,6-diisocyanate
Assessment of carcinogenicity: IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).

Reproductive toxicity
Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Other Information
Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Poorly biodegradable.
The product is unstable in water. The elimination data also refer to products of hydrolysis.

Assessment biodegradation and elimination (H2O)

Information on: TDI

Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Mobility in soil

Assessment transport between environmental compartments
Adsorption to solid soil phase is not expected.

Additional information

Other ecotoxicological advice:
Acutely harmful for aquatic organisms. Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with local authority regulations. Do not discharge into drains/surface waters/groundwater.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Acute; Chronic

EPCRA 313:

CAS Number	Chemical name
91-08-7	toluene-2,6-diisocyanate

CERCLA RQ	CAS Number	Chemical name
5000 LBS	7664-38-2	phosphoric acid
1000 LBS	108-88-3	Toluene
100 LBS	108-90-7; 584-84-9; 91-08-7	chlorobenzene; toluene-2,4-diisocyanate; toluene-2,6-diisocyanate

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	1317-65-3	Limestone
MA, NJ, PA	13463-67-7	Titanium dioxide
MA, NJ, PA	14807-96-6	talc
MA, NJ, PA	1305-78-8	calcium oxide
MA, NJ, PA	8052-41-3	Stoddard solvent
MA, NJ, PA	91-08-7	toluene-2,6-diisocyanate
MA, NJ, PA	584-84-9	toluene-2,4-diisocyanate

CA Prop. 65:
WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA Hazard codes:
Health : 2 Fire: 1 Reactivity: 0 Special:

HMIS III rating
Health: 2¤ Flammability: 1 Physical hazard: 0

16. Other Information

SDS Prepared by:
Top Industrial, Inc.
SDS Prepared on: 2014/12/16

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

35 - 5 pgs
35 Caulk Lead

CANFIELD TECHNOLOGIES, LLC

BOW ELECTRONIC SOLDERS

Lukens Metals

Safety Data Sheet

According to 1907-2006/EC, Article 31

Revised 01/06/2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: **Lead Ingots / Caulking Lead**

Details of the supplier of the safety data sheet.

This Safety Data Sheet has been updated in accordance with the Globally Harmonized System (GHS).

Manufacturer Name: Canfield Technologies/BOW Electronic Solders

Address: 1 Crossman Road, Sayreville, NJ 08872

General Phone Number: 732-316-2100

INFOTRAC 24 Hour Emergency Telephone Number: 1-800-535-5053

SDS Creation Date 6-Jan-15

SDS Revision Date: 6-Jan-18

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture: Carcinogen 1B - H350

Classification according to Regulation (EC) NO 1272/2008

GHS08 Health Hazard

Resp.Sens. 1B **H350** May cause cancer.

GHS07

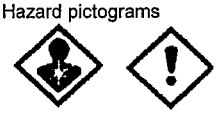
Acute Tox. 4 **H302** Harmful if swallowed.

Label elements

Labeling according to Regulation (EC) No 1272/2008

The product is classified and labeled according to the CLP regulation.

Hazard pictograms



GHS08 GHS07

Signal word Danger

Hazard-determining components of labeling:

Lead (Pb)

Hazard Statements

H302	Harmful if swallowed .
H350	May cause cancer.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle untill safety precautions have been read and understood.
P260	Do not breathe dust/fune/gas/vapors/spray.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment
P280	Wear eye protection , protective clothing, protective gloves.
P308+P313	If exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/container in according with local/regional/national regulations.
Other Hazards:	Prevent particles from becoming airborne. Can cause thermal burns when molten.

Unknown Acute Toxicity Statement:
Not Applicable.
Classification system:
NFPA ratings (scale 0-4)

Health = 1
Fire = 0
Reactivity = 0

Health = 1
Fire = 0
Reactivity = 0

Other hazards
Results of PBT and vPvB assessment
PBT : Not applicable
vPvB: Not applicable

3 COMPOSITION OF MIXTURE

Chemical characterization: Mixtures
Description: Mixtures of the substances listed below with nonhazardous additions.

CAS No.	**Description**			% Range
CAS: 7439-92-1	Lead		Repr. 1A, H350	>99%
EINECS: 231-100-4			Acute Tox. 4, H302	

Additional information:
This solder product does not contain any Substance of very High Concern (SVHC) on the European Chemicals Agency (ECHA) canadate list.
Composition and weight percent of solder alloys varies widely and can be determined by product label.

4 FIRST AID MEASURES

Description of first aid measures
After inhalation:
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air, consult doctor in case of complaints.
After skin contact: Immediately wash with water and soap and rinse thoroughly.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing:
Induce vomiting, if person is conscious. Seek medical help.
Seek immediate medical advice.
Information for doctor:
Most important symptoms and effects, both acute and delayed. No further relevant information available.
Indication of any immediate medical attention and special treatment needed. No further relevant information available.

5 FIREFIGHTER MEASURES

Extinguishing media
Suitable extinguishing agents: CO2, Do not use water.
For safety reasons unsuitable extinguishing agents: water
Special hazards arising from the substance or mixture
In case of fire, the following can be released:
Carbon monoxide (CO)
Carbon dioxide (CO2)
Melted solder above 1000°F will liberate toxic lead fumes and aiphatic aldehydes
Advice for fire fighters
Protective equipment: Wear self-contained respiratory protective device.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation
Environmental precautions: Do not allow to enter sewers/surface or ground water.
Methods and material for containment and cleaning up:
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Melted solder will solidify on cooling and can scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7. HANDLING AND STORAGE

Handling:
Precautions for safe handling: Prevent formation of dust.
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in dry conditions.
Exposure to sulfur or to high humidity will tarnish solder surface.
Specific end use (s) No further relevant information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems: No further data; see item 7.
Control parameters
Components with limit values that require monitoring at the workplace:
Lead 7493-92-1

USA ACGH	ACGIH TWA (mg/m³)	0.05 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.05 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	50 µg/m³

Additional information:
PEL = Permissible Exposure Limit (OSHA)
TWA = Time-Weighted Average
OSHA = Occupational Safety and Health Administration.
ACGIH = American Conference of Governmental Industrial Hygienists
Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Breathing equipment:
Exposure controls: Use appropriate engineering control such as process enclousures, local exhaust ventilation to control airborne levels below recommended exposure limits.
When ventilation is not sufficient to remove airborne levels from the breathing zone, a NIOSH safety approved respirator or self-contained breathing apparatus should be worn. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Protection of hands:

Protective gloves

Material of gloves:
Nitrile rubber, NBR
Natural rubber, NR
Penetration time of glove material:
The exact break through time has to be found out by the manufacturer of the protective gloves and to be observed.
Eye protection :

Face Shield or Safety Glasses

9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
General Information
Appearance :

Form:	Metal in sheet form.
Color:	grey, silver
Odor:	N/A
pH-value:	N/A
Change in condition	
Melting point/melting range:	327.43°C (621.4°F)
boiling point/boiling range:	1740°C (3164°F)
Flammability (solid, gaseous):	N/A
Flash point :	N/A
Auto igniting:	N/A
Vapor density :	N/A
Molecular Weight :	207.21 g/mol
Viscosity:	N/A
Solubility:	insoluble in water
Specific Gravity (Relative Density) :	11.3
Evaporation Rate:	N/A
Vapor Pressure:	1 mm Hg @ 973°C (1783°F)

10 STABILITY AND REACTIVITY

Reactivity
Chemical stability
Thermal decomposition/conditions to be avoided: No decomposition if used according to specifications.
Possibility of hazardous reactions: No dangerous reactions known
Conditions to avoid: No further relevant information available.
Incompatible materials: Strong acids, strong oxidizers.
Hazardous decompositions products:
Carbon monoxide and carbon dioxide
When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Routes of exposure
Inhalation of dust, fumes.
Skin: Contact through physical contact.
Eye: Contact through physical contact or dust and fumes.
Ingestion: Through contamination of skin/ surfaces.
Chronic and Acute Related Symptoms / Effects:
Inhalation: Dust or fumes can cause respiratory irritation.
Skin: Contact with molten metal can cause burns.
Eye: Dust or fumes can cause eye irritation.
Ingestion: Can cause harmful effects.
Acute symptoms can include headaches, abdominal pain, memory loss, kidney failure, anemia, change in skin tone, reroductive problems, weakess, pain, or tingling.
Chronic exposure may cause cancer or lead poisoning.

Measures of Toxicology:
Acute toxicity: Not Classified.
Skin corrosion/ Irritation: Not Classified
Serious Eye Damage/ Irritation: Not Classified
Respiratory or Skin Sesitization: Not Classified
Carcinogenic Information:
May cause Cancer.
IARC (International Agency for Research on Cancer) Group: 2A
Lead 7439-92-1
NTP (National Toxicology Program) status: Reasonably anticipated to be human carcinogen.

12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity: No further relevant information available.
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Result of PBT and vPvB assessment
PBT: Not applicable.
VPvB: Not applicable.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation:
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.
Uncleaned packaging's
Recommendations: Disposal must be made in accordance to official regulations.

14. TRANSPORT INFORMATION

UN- NUMBER	UN 3077
UN proper shipping name	Environmentally Hazardous Substance, solid, n.o.s. (Lead)
IMDG, IATA	
Transport hazard class (es)	
DOT, ADR, IMDG, IATA	Not regulated
Class	9
Packing group	III
Environmental hazards:	Do not release to waterways.
Special precautions for user	Wash skin after contact.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

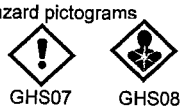
15. REGULATORY INFORMATION

Safety, Health and Environmental regulation / legislation specific for the substance or mixture
USA The following information relates to product regulation specific to the USA.
SARA (Superfund Amendments and Reauthorization Act): Section 311/312 Hazard Classes-Delayed (chronic) Health Hazrad.
SARA (Specific toxic chemical listings): Section 313 Emissions Reporting - 0.1%.

US State Regulations:
California- Prop. 65- Carcinogens List.
California- Prop. 65- Development Toxicity.
California- Prop. 65- Reproductive Toxicity male/Female.
Massachusetts- Right To Know List.
Pennsylvania- Right To Know (Environmental Hazrad)
Pennsylvania- Right To Know.
New Jersey- Right To Know List.

Workplace Hazardous Materials Identification (WHMIS):
This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the Safety Data Sheet (SDS) contains all of the information required by the CPR.

Labeling according to Regulation (EC) NO 1272/2008
The product has classified and labeled according to the CLP regulation.
Hazard pictograms



GHS07 GHS08
Signal word Danger

Hazard-determining components of labeling:
Lead

H302	Harmful if swallowed .
H350	May cause cancer.
Precautionary statements	
P201	Obtain special instructions before use.
P202	Do not handle untill safety precautions have been read and understood.
P260	Do notbreathe dust/fune/gas/vapors/spray.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment
P280	Wear eye protection , protective clothing, protective gloves.
P308+P313	If exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/container in according with local/regional/national regulations.

16 OTHER INFORMATION

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Bow and Canfield Technologies extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The information on this Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process.
All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.
***Data compared to the previous version altered.**

3521#
5 pgs

LEAD METAL

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 12/01/2015 Date of Issue: 12/22/2014 Supersedes Date: 10/05/2010 Version: 1.1

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Substance

Product Name: LEAD METAL

Formula: Pb

Synonyms: DOE RUN LEAD, DOE RUN LEAD ALLOYS AND LEAD STRIP

1.2. Intended Use of the Product

Use of the substance/mixture: For professional use only.

1.3. Name, Address, and Telephone of the Responsible Party

Company

The Doe Run Company

1801 Park 270

Suite 300

St. Louis, MO 63146

573-626-4813

1.4. Emergency Telephone Number

Emergency Number : 855-243-2287 (Client account number: 12236)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Carc. 1B H350

Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS08

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H350 - May cause cancer.

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear eye protection, protective clothing, protective gloves.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Risk of thermal burns on contact with molten product. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name : LEAD METAL

Name	Product Identifier	%	Classification (GHS-US)
Lead	(CAS No) 7439-92-1	> 99	Carc. 1B, H350

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

First-aid Measures After Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance. Seek medical attention for thermal burns.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

First-aid Measures After Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Warning! Contains lead. Lead poisoning can occur via an acute dose or through chronic exposure. Symptoms of lead poisoning include headaches, abdominal pain, memory loss, kidney failure, anemia, change in skin tone or pallor, reproductive problems in men, weakness, pain, or tingling in the extremities. May cause cancer.

Symptoms/Injuries After Inhalation: Fumes from welding, or processing of this material can be harmful if inhaled.

Symptoms/Injuries After Skin Contact: Risk of thermal burns on contact with molten product.

Symptoms/Injuries After Eye Contact: Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Studies on laboratory animals have shown that exposure to inorganic lead compounds may cause cancer.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire. Application of water stream to hot product may cause frothing and increase fire intensity.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: In molten form may react violently with water.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other Information: Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing (dust, fumes).

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: If metal is in molten form allow to cool and collect as a solid. If metal is in solid form collect for remelting purposes.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Recover the product by vacuuming, shovelling or sweeping. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Precautions for Safe Handling: Use safe furnace practices when using this product.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from Incompatible materials.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers. In molten form: moisture.

7.3. Specific End Use(s)

For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

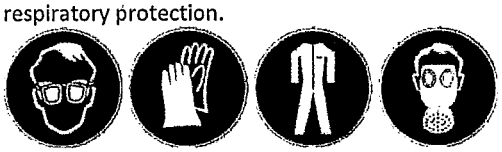
For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), or OSHA (PEL).

Lead (7439-92-1)		
USA ACGIH	ACGIH TWA (mg/m³)	0.05 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.050 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	50 µg/m³

8.2. Exposure Controls

Appropriate Engineering Controls : Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Personal Protective Equipment : Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing : Chemically resistant materials and fabrics.

Hand Protection : Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves.

Eye Protection : Chemical goggles or safety glasses. For safe furnace work: Safety glasses. Face shield.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Thermal Hazard Protection : Fire retardant clothing and gloves, as well as safety shoes are required for safe furnace work.

Environmental Exposure Controls : Do not allow the product to be released into the environment.

Consumer Exposure Controls : Do not eat, drink or smoke during use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

Appearance : Bluish-gray soft metal

Odor : No data available

Odor Threshold : No data available

pH : No data available

Evaporation Rate : No data available

Melting Point : 621 °F (327 °C)

Freezing Point : No data available

Boiling Point : 3164 °F (1740 °C)

Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: 1 mm Hg @ 973 °C (1783 °F)
Relative Vapor Density at 20 °C	: No data available
Specific Gravity	: 11.3
Solubility	: Insoluble in water
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available

9.2. Other Information No additional information available.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: In molten form may react violently with water.

10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Incompatible materials. In molten form: moisture.

10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products: Thermal decomposition generates: lead fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Lead (7439-92-1)	
IARC group	2A
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Fumes from welding, or processing of this material can be harmful if inhaled.

Symptoms/Injuries After Skin Contact: Risk of thermal burns on contact with molten product.

Symptoms/Injuries After Eye Contact: Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Studies on laboratory animals have shown that exposure to inorganic lead compounds may cause cancer.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity No additional information available.

12.2. Persistence and Degradability No additional information available.

12.3. Bioaccumulative Potential No additional information available.

12.4. Mobility in Soil No additional information available.

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Ecology – Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT Not regulated for transport.

14.2. In Accordance with IMDG Not regulated for transport.

14.3. In Accordance with IATA Not regulated for transport.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

LEAD METAL	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

Lead (7439-92-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on United States SARA Section 313

SARA Section 313 - Emission Reporting	0.1 %

15.2 US State Regulations

Lead (7439-92-1)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.

Lead (7439-92-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 12/01/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Carc. 1B	Carcinogenicity Category 1B
H350	May cause cancer

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

35 4#
5 pgs

LEAD METAL

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations
Revision Date: 12/01/2015 Date of Issue: 12/22/2014 Supersedes Date: 10/05/2010 Version: 1.1

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Substance

Product Name: LEAD METAL

Formula: Pb

Synonyms: DOE RUN LEAD, DOE RUN LEAD ALLOYS AND LEAD STRIP

1.2. Intended Use of the Product

Use of the substance/mixture: For professional use only.

1.3. Name, Address, and Telephone of the Responsible Party

Company

The Doe Run Company
1801 Park 270
Suite 300
St. Louis, MO 63146
573-626-4813

1.4. Emergency Telephone Number

Emergency Number : 855-243-2287 (Client account number: 12236)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Carc. 1B H350

Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS08

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H350 - May cause cancer.

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear eye protection, protective clothing, protective gloves.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Risk of thermal burns on contact with molten product. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name : LEAD METAL

Name	Product Identifier	%	Classification (GHS-US)
Lead	(CAS No) 7439-92-1	> 99	Carc. 1B, H350

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

First-aid Measures After Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance. Seek medical attention for thermal burns.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

First-aid Measures After Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Warning! Contains lead. Lead poisoning can occur via an acute dose or through chronic exposure. Symptoms of lead poisoning include headaches, abdominal pain, memory loss, kidney failure, anemia, change in skin tone or pallor, reproductive problems in men, weakness, pain, or tingling in the extremities. May cause cancer.

Symptoms/Injuries After Inhalation: Fumes from welding, or processing of this material can be harmful if inhaled.

Symptoms/Injuries After Skin Contact: Risk of thermal burns on contact with molten product.

Symptoms/Injuries After Eye Contact: Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Studies on laboratory animals have shown that exposure to inorganic lead compounds may cause cancer.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire. Application of water stream to hot product may cause frothing and increase fire intensity.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: In molten form may react violently with water.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other Information: Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing (dust, fumes).

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: If metal is in molten form allow to cool and collect as a solid. If metal is in solid form collect for remelting purposes.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Recover the product by vacuuming, shovelling or sweeping. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Precautions for Safe Handling: Use safe furnace practices when using this product.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from Incompatible materials.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers. In molten form: moisture.

7.3. Specific End Use(s)

For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), or OSHA (PEL).

Lead (7439-92-1)		
USA ACGIH	ACGIH TWA (mg/m³)	0.05 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.050 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	50 µg/m³

8.2. Exposure Controls

Appropriate Engineering Controls : Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Personal Protective Equipment : Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing : Chemically resistant materials and fabrics.

Hand Protection : Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves.

Eye Protection : Chemical goggles or safety glasses. For safe furnace work: Safety glasses. Face shield.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Thermal Hazard Protection : Fire retardant clothing and gloves, as well as safety shoes are required for safe furnace work.

Environmental Exposure Controls : Do not allow the product to be released into the environment.

Consumer Exposure Controls : Do not eat, drink or smoke during use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

Appearance : Bluish-gray soft metal

Odor : No data available

Odor Threshold : No data available

pH : No data available

Evaporation Rate : No data available

Melting Point : 621 °F (327 °C)

Freezing Point : No data available

Boiling Point : 3164 °F (1740 °C)

Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: 1 mm Hg @ 973 °C (1783 °F)
Relative Vapor Density at 20 °C	: No data available
Specific Gravity	: 11.3
Solubility	: Insoluble in water
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available

9.2. Other Information No additional information available.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: In molten form may react violently with water.

10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Incompatible materials. In molten form: moisture.

10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products: Thermal decomposition generates: lead fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Lead (7439-92-1)	
IARC group	2A
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Fumes from welding, or processing of this material can be harmful if inhaled.

Symptoms/Injuries After Skin Contact: Risk of thermal burns on contact with molten product.

Symptoms/Injuries After Eye Contact: Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Studies on laboratory animals have shown that exposure to inorganic lead compounds may cause cancer.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity No additional information available.

12.2. Persistence and Degradability No additional information available.

12.3. Bioaccumulative Potential No additional information available.

12.4. Mobility in Soil No additional information available.

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Ecology – Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT Not regulated for transport.

14.2. In Accordance with IMDG Not regulated for transport.

14.3. In Accordance with IATA Not regulated for transport.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

LEAD METAL	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

Lead (7439-92-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	0.1 %

15.2 US State Regulations

Lead (7439-92-1)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.

Lead (7439-92-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 12/01/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Carc. 1B	Carcinogenicity Category 1B
H350	May cause cancer

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

alpha ASSEMBLY SOLUTIONS™

Safety Data Sheet 12 pages

Safety Data Sheet

Section 1. Identification

Product name : **Solder Alloy 50Sn/50Pb**
Bar, Solid Wire, Ribbon, Preforms, Spheres
Vaculoy, Hi-Flo, SMG, HAL, JetFlo, Fry-Lo, Exactalloy, Copperflo, Flo-Temp, Cleanwave

Product code : 106128

Product type : Solid.

Date of issue/Date of revision : July 9 2018.

Manufacturer - Supplier	Telephone no.:	Emergency phone:
Alpha Assembly Solutions Inc. Global Headquarters 300 Atrium Drive Somerset, New Jersey 08873	Toll Free: (800) 367-5460 Main Phone: (908) 791-3000	DOMESTIC NORTH AMERICA 800-424-9300 INTERNATIONAL, CALL +1 703-527-3887 (collect calls accepted) Alpha Chemtrec# 5591
ALPHA METALS MEXICO SA DE CV Ave Nafta 800, Parque Industrial STIVA Apodaca NL 66600 Mexico	Tel: +52 81 1156-6602	Tel: 01 800 022 1400 Tel: +52 55 5559-1588
Alpha Assembly Solutions Brasil Soldas Ltda Rio Jaguarão, 1540 - Vila Buriti Manaus Amazonas 69072-055 Brasil	Tel: 55 92 3614-7400	Tel: 55 92 3614-7423

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Fertility) - Category 1A
TOXIC TO REPRODUCTION (Unborn child) - Category 1A
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (nervous system, reproductive organs) - Category 1
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Continued on next page

Section 2. Hazards identification

Hazard statements : May damage fertility or the unborn child.
Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure. (nervous system, reproductive organs)
Very toxic to aquatic life with long lasting effects.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Avoid release to the environment. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response : Collect spillage. Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
tin	40-50	7440-31-5
lead	40-50	7439-92-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Continued on next page

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products : Decomposition products may include the following materials: metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Continued on next page

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
tin	**ACGIH TLV (United States, 3/2017).** TWA: 2 mg/m³, (as Sn) 8 hours. **NIOSH REL (United States, 10/2016).** TWA: 2 mg/m³, (as Sn) 10 hours. **OSHA PEL (United States, 6/2016).** TWA: 2 mg/m³, (as Sn) 8 hours.
lead	**OSHA PEL (United States, 5/2005).** TWA: 0.05 mg/m³ 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 50 µg/m³, (as Pb) 8 hours. **ACGIH TLV (United States, 3/2017). Notes: as Pb** TWA: 0.05 mg/m³, (as Pb) 8 hours. **OSHA PEL (United States, 6/2016). Notes: as Pb** TWA: 50 µg/m³, (as Pb) 8 hours. **NIOSH REL (United States, 10/2016). Notes: See Appendix C - Supplemental Exposure Limits Note: The REL and PEL also apply to other lead compounds (as Pb).** TWA: 0.05 mg/m³ 8 hours.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Continued on next page

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid.

Color : Gray.

Odor : None.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : Not available.

Flash point : Not available.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : Not available.

Solubility : Insoluble in the following materials: cold water and hot water.

VOC : 0 g/l

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

Aerosol product

Continued on next page

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Incompatibility with various substances : Reactive or incompatible with the following materials: oxidizing materials, reducing materials, acids and alkalis.
peroxides, Chlorine

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Other Hazardous decomposition products : metal oxides, toxic. fumes

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Routes of entry : Dermal contact. Inhalation. Ingestion.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
tin	LD50 Oral	Rat	>2000 mg/kg	-
lead	LD50 Oral	Rat	>5000 mg/kg	-

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
lead	-	Subject: Mammalian-Animal	Equivocal

Carcinogenicity

No applicable toxicity data

Additional information:

Classification

Product/ingredient name	OSHA	IARC	NTP
lead	-	2B	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
lead	-	-	Equivocal	Rat - Female	Oral: 520 mg/kg	-
	-	-	Equivocal	Rat - Female	Inhalation: 3 mg/m³	24 hours per day
	Equivocal	-	-	Mouse - Female	Oral: 300 mg/kg	-
	-	Equivocal	-	Mouse	Oral: 4099.2 mg/kg	-

Teratogenicity

Continued on next page

Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
lead	Equivocal - Oral	Mammal - species unspecified	2118 mg/kg	-
	Equivocal - Inhalation	Rat	10 mg/m³	24 hours per day

Specific target organ toxicity

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
lead	Category 1	Not determined	nervous system and reproductive organs

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Causes damage to organs through prolonged or repeated exposure.

Continued on next page

Section 11. Toxicological information

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
lead	Acute EC50 105 ppb Marine water	Algae - Chaetoceros sp. - Exponential growth phase	72 hours
	Acute EC50 0.489 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 8000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute LC50 530 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata	48 hours
	Acute LC50 4400 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 0.44 ppm Fresh water	Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 0.25 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.03 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Continued on next page

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 5(a)2 proposed significant new use rule (SNUR): No products were found.
TSCA 5(a)2 final significant new use rule (SNUR): No products were found.
TSCA 12(b) one-time export notification: No products were found.
TSCA 12(b) annual export notification: lead
Refer to Proposed Rule (59 Federal Register 11122, March 9, 1994) for details on TSCA 12(b) applicability for lead.

United States inventory (TSCA 8b) : All components are listed or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification : Delayed (chronic) health hazard

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	lead	7439-92-1	40-50
Supplier notification	lead	7439-92-1	40-50

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Continued on next page

Section 15. Regulatory information

Canada

Canada inventory : All components are listed or exempted.

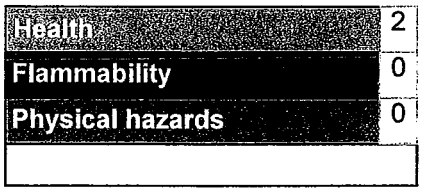
International lists

National inventory

Australia	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: All components are listed or exempted.
Malaysia	: All components are listed or exempted.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: All components are listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Procedure used to derive the classification

Classification	Justification
Carc. 2, H351	Calculation method
Repr. 1A, H360 (Fertility)	Calculation method
Repr. 1A, H360 (Unborn child)	Calculation method
STOT RE 1, H372 (nervous system, reproductive organs)	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method

History

Date of issue/Date of revision	: July 9 2018.
Date of previous issue	: September 26 2016.
Version	: 2.01
Prepared by	: **Regulatory Affairs Department** **enthone.msds@macdermidenthone.com**

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

Continued on next page

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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12 pages

ARKEMA
INNOVATIVE CHEMISTRY

SAFETY DATA SHEET

FORANE® 22

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Fluorochemicals

Customer Service Telephone Number: (800) 245-5858
(Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name: FORANE® 22
Synonyms: R-22, HCFC-22
Molecular formula: CHClF2
Chemical family: Hydrochlorofluorocarbon
Product use: Refrigerant

2. HAZARDS IDENTIFICATION

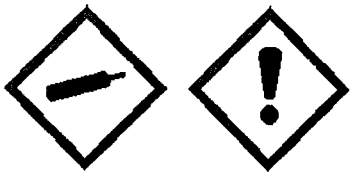
Emergency Overview
Color: Clear - colourless
Physical state: gaseous
Form: Liquefied gas
Odor: Slightly ether-like

***Classification of the substance or mixture:**
Gases under pressure, Liquefied gas, H280
Specific target organ toxicity - single exposure, Category 3, H336
Hazardous to the ozone layer, Category 1, H420

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labelling

Hazard pictograms:



Signal word: **Warning**

Hazard statements:

H280 : Contains gas under pressure; may explode if heated.
H336 : May cause drowsiness or dizziness.
H420 : Harms public health and the environment by destroying ozone in the upper atmosphere.

Supplemental Hazard Statements:

Overheating or overpressurizing may cause gas release or violent cylinder bursting. May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Vapor reduces oxygen available for breathing and is heavier than air. Prolonged or repeated contact may dry skin and cause irritation. May cause frostbite. May cause effects on: Heart

Precautionary statements:

Prevention:

P261 : Avoid breathing gas/mist/vapours/spray.
P271 : Use only outdoors or in a well-ventilated area.

Response:

P304 + P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 : Call a POISON CENTER/doctor if you feel unwell.

Storage:

P403 + P233 : Store in a well-ventilated place. Keep container tightly closed.
P405 : Store locked up.
P410 : Protect from sunlight.

Disposal:

P501 : Dispose of contents/ container to an approved waste disposal plant.
P502 : Refer to manufacturer/ supplier for information on recovery/ recycling.

Supplemental information:

Potential Health Effects:

Liquid : Contact with liquid or refrigerated gas can cause cold burns and frostbite. Vapor: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. If inhaled: Central nervous system effects: headache, nausea, dizziness, drowsiness, loss of consciousness. Stress induced heart effects: Inhalation may cause an increase in the sensitivity of the heart to adrenaline, which could result in irregular or rapid heartbeats and reduced heart function.

Medical conditions aggravated by overexposure:
Heart disease or compromised heart function.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
Methane, chlorodifluoro-	75-45-6	100 %	H280

**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

Inhalation:
If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin:
If on skin, flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly. Remove contaminated clothing and shoes. Get medical attention if frostbitten by liquid or if irritation occurs. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:
Immediately flush eye(s) with plenty of water. Get medical attention if irritation persists.

Ingestion:
Ingestion is not applicable - product is a gas at ambient temperatures.

4.2. Most important symptoms/effects, acute and delayed:

For most important symptoms and effects (acute and delayed), see Section 2 (Hazard Statements and Supplemental Information) and Section 11 (Toxicology Information) of this SDS.

4.3. Indication of immediate medical attention and special treatment needed, if necessary:

Unless otherwise noted in Notes to Physician, no specific treatment noted; treat symptomatically.

Notes to physician:
Do not give drugs from adrenaline-ephedrine group.

5. FIREFIGHTING MEASURES

Extinguishing media (suitable):

Use extinguishing measures to suit surroundings.

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:
Fight fire with large amounts of water from a safe distance.
Stop the flow of gas if possible.
Water mist should be used to reduce vapor concentrations in air.
Cool closed containers exposed to fire with water spray.
Closed containers of this material may explode when subjected to heat from surrounding fire.
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:
May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products.
Liquid and gas under pressure, overheating or overpressurizing may cause gas release and/or violent cylinder bursting.
Container may explode if heated due to resulting pressure rise.
Some mixtures of HCFCs and/or HFCs, and air or oxygen may be combustible if pressurized and exposed to extreme heat or flame.
When burned, the following hazardous products of combustion can occur:
Hydrogen fluoride
hydrogen chloride
Carbon oxides
Carbonyl halides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, Emergency procedures, Methods and materials for containment/clean-up:
Eliminate all ignition sources. Evacuate area of all unnecessary personnel. Use Halogen leak detector or other suitable means to locate leaks or check atmosphere. Prevent further leakage or spillage if you can do so without risk. Keep upwind. Evacuate enclosed spaces and disperse gas with floor-level forced-air ventilation. Avoid breathing leaked material. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

Protective equipment:
Appropriate personal protective equipment is set forth in Section 8.

7. HANDLING AND STORAGE

Handling

General information on handling:
Keep away from heat, sparks and flames.
Avoid contact with skin, eyes and clothing.
Avoid breathing gas.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Do not enter confined spaces unless adequately ventilated.
Use equipment rated for cylinder pressure.
Close valve after each use and when empty.
Emptied container retains vapor and product residue.
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage

General information on storage conditions:
Store in well ventilated area away from heat, direct sunlight and sources of ignition such as flame, sparks and static electricity.

Storage stability – Remarks:
Do not apply direct flame to cylinder. Do not store cylinder in direct sun or expose it to heat above 120 F (48.9 C.).
Do not drop or refill this cylinder.

Storage incompatibility – General:
Store separate from: Alkaline earth metals

Finely divided metals (aluminium, magnesium, zinc...)

Strong oxidizing agents

Alkali metals

strong bases

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Methane, chlorodifluoro- (75-45-6)

US. ACGIH Threshold Limit Values

Time weighted average	1,000 ppm

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:
Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce

exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above).If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Monitor carbon monoxide and oxygen levels in tanks and enclosed spaces.Consult ACGIH ventilation manual, NFPA Standard 91 and NFPA Standard 654 for design of exhaust system and safe handling.

Respiratory protection:
Avoid breathing gas. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components (full facepiece recommended). Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:
Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Eye protection:
Use good industrial practice to avoid eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Clear - colourless
Physical state:	gaseous
Form:	Liquefied gas
Odor:	Slightly ether-like
Odor threshold:	No data available
Flash point	Not applicable
Auto-ignition temperature:	1,170 °F (632 °C)
Lower flammable limit (LFL):	13 %(V) None.
Upper flammable limit (UFL):	None.
pH:	Not applicable
Density:	1.19 g/cm3 (77 °F (25 °C))

Vapor pressure:	7,033 mmHg (77 °F (25 °C))
Vapor density:	3.00 kg/m3
Boiling point/boiling range:	No data available
Melting point/range:	No data available
Freezing point:	No data available
Evaporation rate:	No data available
Solubility in water:	slightly soluble
Viscosity, dynamic:	No data available
Oil/water partition coefficient:	No data available
Thermal decomposition	No data available
Flammability:	See GHS Classification in Section 2

10. STABILITY AND REACTIVITY

Stability:
This material is chemically stable under normal and anticipated storage, handling and processing conditions.

Hazardous reactions:
None known.

Materials to avoid:
Alkaline earth metals
Finely divided metals (aluminium, magnesium, zinc...)
Strong oxidizing agents
Alkali metals
Strong bases

Conditions / hazards to avoid:
Heat

Hazardous decomposition products:
Thermal decomposition giving toxic and corrosive products :
hydrogen chloride
Hydrogen fluoride
Carbon oxides
Carbonyl halides

11. TOXICOLOGICAL INFORMATION

Data for FORANE® 22

Acute toxicity

Inhalation:
Practically nontoxic. (Rat) 4 h LC50 220000 ppm. (Gas)

Skin Irritation:
Practically non-irritating. (Rabbit) (Rapid evaporation of the liquid may cause frostbite.)

Eye Irritation:
Causes mild eye irritation. (Rabbit) (30 s) signs: Rapid evaporation of the liquid may cause frostbite (gas spray)

Sensitization:
Causes cardiac sensitization. (dog, rat, mouse, rabbit and monkey) signs: irregular heart beat, rapid heart beat, in some cases, sudden death (Reaction may occur in response to stress (natural adrenaline release) or administration of epinephrine.)

Skin Sensitization:
Not a sensitizer. Repeated skin exposure. (Guinea pig) No skin allergy was observed

Repeated dose toxicity
Chronic inhalation administration to rat, mouse / No adverse systemic effects reported.

Chronic oral administration to Rat / No adverse systemic effects reported.

Carcinogenicity
Chronic inhalation administration to mice / signs: No increase in tumor incidence was reported.

Chronic inhalation administration to female rat / signs: No increase in tumor incidence was reported.

Chronic inhalation administration to male rat / affected organ(s): salivary gland / signs: Increased incidence of tumors was reported. / (not considered relevant to humans)

Genotoxicity

Assessment in Vitro:
Genetic changes were observed in laboratory tests using: bacteria

No genetic changes were observed in laboratory tests using: animal cells, yeast

Assessment in Vivo:
No genetic changes were observed in laboratory tests using: mice

Developmental toxicity

Exposure during pregnancy. inhalation (Rat) / Birth defects were observed. (eye)

Exposure during pregnancy. inhalation (Rabbit) / No birth defects were observed.

Reproductive effects

Reproduction test. inhalation (rat and mouse) / No toxicity to reproduction / (males)

Human experience

Inhalation:
Lung: Asphyxia, suffocation.
Heart: Palpitation. (based on reports of occupational exposure to workers)
Skin contact:
Skin: irritation, redness, swelling. (repeated or prolonged exposure)

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
Data on this material and/or a similar material are summarized below.

Data for FORANE® 22

Biodegradation:
Not readily biodegradable. (28 d) biodegradation 0 %

Octanol Water Partition Coefficient:
log Pow = 1.08 (Practically no potential to bioaccumulate.)

Photodegradation:
Half-life direct photolysis: = 8.4 y

Mobility and Distribution in the Environment:
Moderate adsorption / Log Koc= 1.8

Global Warming Potential:
GWP 1,810 (Global warming potential with respect to CO2 (time horizon 100 years))
GWP 0.33 (Halocarbon global warming potential; HGWP; (R-11 = 1))

Ozone Depletion Potential:
ODP 0.055 (Ozone depletion potential; ODP; (R-11 = 1))

Ecotoxicology
Data on this material and/or a similar material are summarized below.

Data for FORANE® 22

Aquatic toxicity data:
Practically nontoxic. Brachydanio rerio (zebrafish) 96 h LC50 = 777 mg/l

Aquatic invertebrates:
Practically nontoxic. Daphnia magna (Water flea) 48 h EC50 = 433 mg/l

Microorganisms:
Bacteria 24 h Toxicity threshold > 400 mg/l (under anaerobic conditions)

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Do not vent the container contents, or product residuals, to the atmosphere. Recover and reclaim unused contents or residuals as appropriate. Recovered/reclaimed product can be returned to an approved certified reclaimer or back to the seller depending on the material. Completely emptied disposable containers can be disposed of as recyclable steel. Returnable cylinders must be returned to seller. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	:	1018
Proper shipping name	:	Chlorodifluoromethane (Refrigerant gas R 22)
Class	:	2.2
Marine pollutant	:	no

International Maritime Dangerous Goods Code (IMDG)

UN Number	:	1018
Proper shipping name	:	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)
Class	:	2.2
Marine pollutant	:	no

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	Conforms to
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL
Japan. Kashin-Hou Law List	ENCS (JP)	Does not conform
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	Conforms to

China. Inventory of Existing Chemical Substances IECSC (CN) Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:
Acute Health Hazard, Sudden Release of Pressure Hazard

SARA Title III – Section 313 Toxic Chemicals:

Chemical name	CAS-No.	De minimis concentration	Reportable threshold:
Methane, chlorodifluoro-	75-45-6	1.0 %	25000 lbs (Manufacturing and processing) 10000 lbs (Otherwise used (non-manufacturing/processing))

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

United States – State Regulations

New Jersey Right to Know

Chemical name	CAS-No.
Methane, chlorodifluoro-	75-45-6

Pennsylvania Right to Know

Chemical name	CAS-No.
Methane, chlorodifluoro-	75-45-6

Pennsylvania Right to Know – Environmentally Hazardous Substance(s)

Chemical name	CAS-No.
Methane, chlorodifluoro-	75-45-6

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H280	Contains gas under pressure; may explode if heated.
H336	May cause drowsiness or dizziness.
H420	Harms public health and the environment by destroying ozone in the upper atmosphere.

Latest Revision(s):

Revised Section(s):	chapter 4 update
Reference number:	000000033818
Date of Revision:	05/06/2016
Date Printed:	05/10/2016

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Arkema has implemented a Medical Policy regarding the use of Arkema products in Medical Devices applications that are in contact with the body or circulating bodily fluids (http://www.arkema.com/en/social-responsibility/responsible-product-management/medical-device-policy/index.html) Arkema has designated Medical grades to be used for such Medical Device applications. Products that have not been designated as Medical grades are not authorized by Arkema for use in Medical Device applications that are in contact with the body or circulating bodily fluids. In addition, Arkema strictly prohibits the use of any Arkema products in Medical Device applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days. The Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices , and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices.
It is the sole responsibility of the manufacturer of the medical device to determine the suitability (including biocompatibility) of all raw materials, products and components, including any medical grade Arkema products, in order to ensure that the final end-use product is safe for its end use; performs or functions as intended; and complies with all applicable legal and regulatory requirements (FDA or other national drug agencies) It is the sole responsibility of the manufacturer of the medical device to conduct all necessary tests and inspections and to evaluate the medical device under actual end-use requirements and to adequately advise and warn purchasers, users, and/or learned intermediaries (such as physicians) of pertinent risks and fulfill any postmarket surveillance obligations. Any decision regarding the appropriateness of a particular Arkema material in a particular medical device should be based on the judgment of the manufacturer, seller, the competent authority, and the treating physician.

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13 pages

ARKEMA
INNOVATIVE CHEMISTRY

SAFETY DATA SHEET

FORANE® 410A

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Fluorochemicals

Customer Service Telephone Number: (800) 245-5858
(Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)

Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name:	FORANE® 410A
Synonyms:	R-410A, HFC 410A, FORANE FX 41
Molecular formula:	Mixture
Chemical family:	Hydrofluorocarbon
Molecular weight:	72.59 g/mol
Product use:	Refrigerant

2. HAZARDS IDENTIFICATION

Emergency Overview

Color:	Clear - colourless
Physical state:	gaseous
Form:	Liquefied gas
Odor:	Slightly ether-like

***Classification of the substance or mixture:**
Gases under pressure, Liquefied gas, H280

*For the full text of the H-Statements mentioned in this Section, see Section 16.

ARKEMA
INNOVATIVE CHEMISTRY

SAFETY DATA SHEET

FORANE® 410A

GHS-Labelling

Hazard pictograms:

Signal word: **Warning**

Hazard statements:
H280 : Contains gas under pressure; may explode if heated.

Supplemental Hazard Statements:
Overheating or overpressurizing may cause gas release or violent cylinder bursting.
May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products.
May cause frostbite.
May cause headache, nausea, dizziness, drowsiness, loss of consciousness.
May cause cardiac sensitization/cardiac arrhythmia.
May displace oxygen and cause rapid suffocation.

Precautionary statements:

Storage:
P403 : Store in a well-ventilated place.
P410 : Protect from sunlight.

Special labelling:

Contains fluorinated greenhouse gases covered by the Kyoto Protocol. Contains: Difluoromethane; Pentafluoroethane.

Special labelling:
Contains fluorinated greenhouse gases covered by the Kyoto Protocol. Contains: Difluoromethane; Pentafluoroethane.

Supplemental information:

Potential Health Effects:
Liquid : Contact with liquid or refrigerated gas can cause cold burns and frostbite. Vapor: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Central nervous system effects: headache, nausea, dizziness, drowsiness, loss of consciousness.
Stress induced heart effects: irregular heart beat, rapid heart beat, (severity of effects depends on extent of exposure).

Medical conditions aggravated by overexposure:
Heart disease or compromised heart function.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
Ethane, pentafluoro-	354-33-6	50 %	H280
Methane, difluoro-	75-10-5	50 %	H220, H280

**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

Inhalation:
If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin:
If on skin, flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly. Get medical attention if frostbitten by liquid or if irritation occurs. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:
Immediately flush eye(s) with plenty of water.

Ingestion:
Ingestion is not applicable - product is a gas at ambient temperatures.

4.2. Most important symptoms/effects, acute and delayed:

For most important symptoms and effects (acute and delayed), see Section 2 (Hazard Statements and Supplemental Information) and Section 11 (Toxicology Information) of this SDS.

4.3. Indication of immediate medical attention and special treatment needed, if necessary:

Unless otherwise noted in Notes to Physician, no specific treatment noted; treat symptomatically.

Notes to physician:
Do not give drugs from adrenaline-ephedrine group.

5. FIREFIGHTING MEASURES

Extinguishing media (suitable):
Use extinguishing measures to suit surroundings.

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).
Fire fighting equipment should be thoroughly decontaminated after use.

Further firefighting advice:
Fight fire with large amounts of water from a safe distance.
Stop the flow of gas if possible.
Water mist should be used to reduce vapor concentrations in air.
Cool closed containers exposed to fire with water spray.
Closed containers of this material may explode when subjected to heat from surrounding fire.
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:
May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products.
Liquid and gas under pressure, overheating or overpressurizing may cause gas release and/or violent cylinder bursting.
Container may explode if heated due to resulting pressure rise.
Some mixtures of HCFCs and/or HFCs, and air or oxygen may be combustible if pressurized and exposed to extreme heat or flame.
When burned, the following hazardous products of combustion can occur:
Hydrogen fluoride
Carbonyl halides
Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, Emergency procedures, Methods and materials for containment/clean-up:
Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel. Eliminate all ignition sources. Use Halogen leak detector or other suitable means to locate leaks or check atmosphere. Keep upwind. Evacuate enclosed spaces and disperse gas with floor-level forced-air ventilation. Avoid breathing leaked material. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

Protective equipment:
Appropriate personal protective equipment is set forth in Section 8.

7. HANDLING AND STORAGE

Handling

General information on handling:
Avoid breathing gas.
Avoid contact with skin, eyes and clothing.
Keep away from heat, sparks and flames.
Wear cold-insulating gloves/face shield/eye protection.
Do NOT change or force fit connections.
Keep container closed.
Use only with adequate ventilation.
Do not change or force fit connections.
Use equipment rated for cylinder pressure.
Use a backflow preventative device in piping.
Wash thoroughly after handling.
Close valve after each use and when empty.
Do not enter confined spaces unless adequately ventilated.
DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.
Emptied container retains vapor and product residue.
Improper disposal or reuse of this container may be dangerous and/or illegal.

Storage

General information on storage conditions:
Keep away from direct sunlight. Keep cylinders restrained. Store in cool, dry, well ventilated area away from sources of ignition such as flame, sparks and static electricity.

Storage stability – Remarks:
Do not apply direct flame to cylinder. Do not store cylinder in direct sun or expose it to heat above 120 F (48.9 C.).
Do not drop or refill this cylinder.

Storage incompatibility – General:
Store separate from: Finely divided metals (aluminium, magnesium, zinc...)
Strong bases
Alkali metals
Alkaline earth metals
Strong oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Ethane, pentafluoro- (354-33-6)

US. OARS. WEELs Workplace Environmental Exposure Level Guide

Time weighted average	1,000 ppm (4,900 mg/m3)

Remarks:	Listed
Time weighted average	1,000 ppm (4,900 mg/m3)

Methane, difluoro- (75-10-5)

US. OARS. WEELs Workplace Environmental Exposure Level Guide

Time weighted average	1,000 ppm (2,200 mg/m3)
Remarks:	Listed

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:
Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above).If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Monitor carbon monoxide and oxygen levels in tanks and enclosed spaces.

Respiratory protection:
Avoid breathing gas. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components (full facepiece recommended). Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:
Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Eye protection:
Use good industrial practice to avoid eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Clear - colourless
Physical state:	gaseous

Form:	Liquefied gas
Odor:	Slightly ether-like
Odor threshold:	No data available
Flash point	Not applicable
Auto-ignition temperature:	No data available
Lower flammable limit (LFL):	None.
Upper flammable limit (UFL):	None.
pH:	Not applicable
Density:	No data available
Specific Gravity (Relative density):	1.06 (77 °F(25 °C))Water=1 (liquid)
Vapor pressure:	11,061 mmHg (70.0 °F (21.1 °C))
Vapor density:	2.52 kg/m3
Boiling point/boiling range:	-63.0 °F (-52.8 °C)
Melting point/range:	No data available.
Freezing point:	No data available
Evaporation rate:	No data available
Solubility in water:	No data available
Viscosity, dynamic:	No data available
% Volatiles:	100 %
Molecular weight:	72.59 g/mol
Oil/water partition coefficient:	Not applicable
Thermal decomposition:	Not applicable
Flammability:	See GHS Classification in Section 2

10. STABILITY AND REACTIVITY

Stability:
This material is chemically stable under normal and anticipated storage, handling and processing conditions.

Hazardous reactions:
None known.

Materials to avoid:
Strong oxidizing agents
Strong acids
Alkaline materials

Conditions / hazards to avoid:
Heat

Hazardous decomposition products:
Thermal decomposition giving toxic and corrosive products :
Hydrogen fluoride
Carbonyl halides
Carbon oxides

11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

Data for Ethane, pentafluoro- (354-33-6)

Acute toxicity

Inhalation:
Practically nontoxic. (Rat) 4 h LC50 (> 800000 ppm). (Gas)

Sensitization:
Causes cardiac sensitization. inhalation. (Dog) Stress induced heart effects: Stress induced heart effects: (Reaction may occur in response to stress (natural adrenaline release) or administration of epinephrine.)

Repeated dose toxicity
Subchronic inhalation administration to Rat / No adverse systemic effects reported.

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells

Genotoxicity

Assessment in Vivo:
No genetic changes were observed in laboratory tests using: mice

Developmental toxicity
Exposure during pregnancy. inhalation (rat and rabbit) / No birth defects were observed.

Data for Methane, difluoro- (75-10-5)

Acute toxicity

Inhalation:
Practically nontoxic. (Rat) 4 h LC50 (> 520000 ppm). signs: anesthetic effects, central nervous system depression

Sensitization:
Cardiac sensitization not observed. inhalation. (Dog)

Repeated dose toxicity
Subchronic inhalation administration to Rat / No adverse effects reported.

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells

Genotoxicity

Assessment in Vivo:
No genetic changes were observed in a laboratory test using: mice

Developmental toxicity
Exposure during pregnancy. inhalation (rat and rabbit) / No birth defects were observed.

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
Data on this material and/or its components are summarized below.

Data for Ethane, pentafluoro- (354-33-6)

Biodegradation:
Not readily biodegradable. (Closed Bottle test, 28 d) biodegradation 5 %

Octanol Water Partition Coefficient:
log Pow = 1.48

Global Warming Potential:
GWP 0.84 (Halocarbon global warming potential; HGWP; (R-11 = 1))
GWP 3,450 (Global warming potential with respect to CO2 (time horizon 100 years))

Ozone Depletion Potential:
ODP 0 (Ozone depletion potential; ODP; (R-11 = 1))

Data for Methane, difluoro- (75-10-5)

Biodegradation:
Not readily biodegradable. (28 d) biodegradation 5 %

Octanol Water Partition Coefficient:
log Pow = 0.21

Global Warming Potential:
GWP 543 (Global warming potential with respect to CO2 (time horizon 100 years))

Ozone Depletion Potential:
ODP 0 (Ozone depletion potential; ODP; (R-11 = 1))

Ecotoxicology
No data are available.

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Do not vent the container contents, or product residuals, to the atmosphere. Recover and reclaim unused contents or residuals as appropriate. Recovered/reclaimed product can be returned to an approved certified reclaimer or back to the seller depending on the material. Completely emptied disposable containers can be disposed of as recyclable steel. Returnable cylinders must be returned to seller. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	:	3163
Proper shipping name	:	Liquefied gas, n.o.s.
Class	:	2.2
Marine pollutant	:	no

International Maritime Dangerous Goods Code (IMDG)

UN Number	:	3163
Proper shipping name	:	LIQUEFIED GAS, N.O.S.
Class	:	2.2
Marine pollutant	:	no

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL

China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Conforms to
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:
The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:
Acute Health Hazard, Sudden Release of Pressure Hazard

SARA Title III – Section 313 Toxic Chemicals:
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

United States – State Regulations

New Jersey Right to Know

Chemical name	CAS-No.
Methane, difluoro-	75-10-5

Pennsylvania Right to Know

Chemical name	CAS-No.
Methane, difluoro-	75-10-5
Ethane, pentafluoro-	354-33-6

ARKEMA
INNOVATIVE CHEMISTRY

SAFETY DATA SHEET

FORANE® 410A

Pennsylvania Right to Know – Environmentally Hazardous Substance(s)

Chemical name	CAS-No.
Methane, difluoro-	75-10-5

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Miscellaneous:

Other information: A significant new activity notice (SNAC notice) has been issued for Difluoromethane (HFC-32). It is the responsibility of the users of the substance to be aware of and comply with the SNAC notice and to submit a SNAC notification to Environment Canada prior to the commencement of a significant new activity associated with the substance.

Latest Revision(s):

Reference number:	200005120
Date of Revision:	09/28/2016
Date Printed:	09/29/2016

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ARKEMA
INNOVATIVE CHEMISTRY

SAFETY DATA SHEET

FORANE® 410A

It is the sole responsibility of the manufacturer of the medical device to determine the suitability (including biocompatibility) of all raw materials, products and components, including any medical grade Arkema products, in order to ensure that the final end-use product is safe for its end use; performs or functions as intended; and complies with all applicable legal and regulatory requirements (FDA or other national drug agencies) It is the sole responsibility of the manufacturer of the medical device to conduct all necessary tests and inspections and to evaluate the medical device under actual end-use requirements and to adequately advise and warn purchasers, users, and/or learned intermediaries (such as physicians) of pertinent risks and fulfill any postmarket surveillance obligations. Any decision regarding the appropriateness of a particular Arkema material in a particular medical device should be based on the judgment of the manufacturer, seller, the competent authority, and the treating physician.

36-3pgs

36 AQUA

MADISON CHEMICAL CO., INC.
3141 Clifty Drive • Madison, IN 47250

MATERIAL SAFETY DATA SHEET

HMIS	
H	1
M	0
I	0
S	0

NAME: **AQUACLEAN** **PRODUCT #** 181801

1. PRODUCT AND COMPANY IDENTIFICATION

EMERGENCY RESPONSE INFORMATION:

Company Offices:	812-273-6000	Weekdays
CHEMTREC:	800-424-9300	24-Hour Service
Steven T. Hale:	812-265-2703	Evenings and Weekends
David R. Goodman, Jr.:	812-273-6213	Evenings and Weekends

PREPARED DATE: 1-14-2015 **PREPARED BY:** Steven T. Hale

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Clear, light-green liquid with a mild odor. May cause skin or eye irritation. May be harmful if swallowed.

POTENTIAL HEALTH EFFECTS:

EYES: Contacted areas may exhibit irritation.

SKIN: Contacted areas may exhibit irritation.

INGESTION: May be harmful if swallowed.

INHALATION: May cause nasal and respiratory irritation.

CHRONIC EFFECTS / CARCINOGENICITY: Chronic overexposure to dipropylene glycol methyl ether has apparently been found to cause liver abnormalities and kidney damage in laboratory animals.

POTENTIAL ENVIRONMENTAL EFFECTS: This material contains no ingredient above de minimus concentrations known to persist in the environment.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	SYNONYM	CAS NO.	% BY WEIGHT
Dipropylene glycol methyl ether	DPM	34590-94-8	1 - 10

4. FIRST AID MEASURES

EYES: Immediately flush with large quantities of cool water continuously for at least 15 minutes. Call a physician.

SKIN: Immediately flush with large quantities of cool water continuously for at least 15 minutes. Call a physician. Remove contaminated clothing and shoes. Do not put contaminated clothing and shoes back on. Wash clothing and shoes thoroughly in soap and water; rinse repeatedly in clean water and dry before reuse.

INGESTION: Induce vomiting. Give water. Never give anything by mouth to an unconscious person. Call a physician. Ingestion may produce signs of intoxication.

INHALATION: Move subject to fresh air and get medical attention. Excessive inhalation of dipropylene glycol methyl ether may cause nasal and respiratory irritation and central nervous system effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

SIGNS AND SYMPTOMS OF EXPOSURE: Contacted areas may exhibit irritation.

PRIMARY ROUTE(S) OF ENTRY: Eyes, skin, inhalation.

NAME: **AQUACLEAN** PRODUCT # 181801

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:	**FLASH POINT:**	None prior to boiling (TOC, ASTM D 1310).
	FLAMMABLE LIMITS:	
	LEL:	N.D.
	UEL:	N.D.
EXTINGUISHING MEDIA:	As appropriate for surrounding fire.	
FIRE FIGHTING INSTRUCTIONS:	Use NIOSH / MSHA approved positive pressure self-contained breathing apparatus when any material is involved in a fire.	

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Contain liquid spills with sand and absorb on inert material. Dispose with solid waste. See Waste Disposal Method. Flush remainder to drain with water.

7. HANDLING AND STORAGE

PRECAUTIONS: Normal for alkaline materials. Store away from acids. Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Use good ventilation. Local exhaust is recommended if TLVs are exceeded.

RESPIRATORY PROTECTION: Not needed for normal use.

SKIN PROTECTION: Impermeable type gloves. Other equipment as required to avoid contact.

EYE PROTECTION: Safety eyewear to protect against unexpected splashes.

GENERAL HYGIENE CONSIDERATIONS: Eyewash facility and emergency shower should be in close proximity. Always wash hands after handling any chemical.

EXPOSURE GUIDELINES:

CHEMICAL IDENTITY	CAS NO.	OSHA PEL	ACGIH TLV
Dipropylene glycol methyl ether	34590-94-8	100 ppm (skin)	100 ppm (skin)

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR:	Clear, light-green liquid with a mild odor.		
BOILING POINT (°F.):	212	**SPECIFIC GRAVITY (WATER = 1):**	1.06
VAPOR PRESSURE (mm Hg):	N.D.	**PERCENT VOLATILE BY VOLUME (%):**	N.D.
VAPOR DENSITY (Air = 1):	N.D.	**EVAPORATION RATE (WATER = 1):**	1.0
SOLUBILITY IN WATER:	Complete.	**pH (100%):**	11.0 – 12.0
FLASH POINT (Method used):	None prior to boiling (TOC, ASTM D 1310).	**pH (1% by volume):**	9.0 – 10.0
LEL:	N.D.		
UEL:	N.D.		

10. STABILITY AND REACTIVITY

STABILITY:	Material is stable.
INCOMPATIBILITY (Materials to Avoid):	Acids, strong oxidizers.
CONDITIONS TO AVOID:	No data found.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon monoxide, carbon dioxide, oxides of sulphur.
HAZARDOUS POLYMERIZATION:	Will not occur.

NAME: **AQUACLEAN** **PRODUCT #** 181801

11. TOXICOLOGICAL INFORMATION

96 hour LC50 70.7 ppm on Fundulus heteroclitus.
48 hour LC50 11.7 ppm on Artemia Salina.
Chronic overexposure to dipropylene glycol methyl ether has apparently been found to cause liver abnormalities and kidney damage in laboratory animals.

12. ECOLOGICAL INFORMATION

This material contains no hazardous air pollutants (HAPS). This material contains no ingredient above de minimus concentrations known to persist in the environment.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Normal for alkaline wastes. May require pH adjustment for neutralization. Dispose in accordance with local, state and federal regulations.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING DESCRIPTION: Compound, cleaning, NOI, liquid.
(This material is not a hazardous material under regulations of the US Department of Transportation.)

15. REGULATORY INFORMATION

VOC: 0.39 pounds per gallon (47 grams per liter).

TSCA STATUS: All ingredients are listed on the TSCA inventory.

CERCLA REPORTABLE QUANTITY: None established.

SARA 311 / 312 HAZARD CLASSES:

X	Acute Health	X	Chronic Health
	Fire		Reactive
	Sudden Release of Pressure		

SARA 312 INFORMATION: Storage of 10,000 pounds or more requires filing a Tier 2 form. This material is not an extremely hazardous substance (EHS). Threshold planning quantity is 10,000 pounds.

SARA 313 INFORMATION: This material contains the following substances subject to the reporting requirements of Section 313 of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CATEGORY CODE	CAS NO.	% BY WEIGHT
None			

STATE REGULATORY INFORMATION:

CALIFORNIA (PROPOSITION 65): California has not identified the ingredients listed in Section 3 as known to cause cancer or reproductive toxicity.

16. OTHER INFORMATION

MSDS STATUS: Revised sections 1, 7, 8 and 16 on 1-14-2015

PRECAUTIONARY LABELING: **WARNING!**
May cause skin or eye irritation.
May be harmful if swallowed.
Contains dipropylene glycol methyl ether.

FOR INDUSTRIAL USE ONLY – KEEP OUT OF REACH OF CHILDREN

N.A. = Not Available N.D. = Not Determined N.E. = None Established N.R. = Not Relevant

36 Blitz Flux
2 pgs

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name:	AMCO BLITZ	CAS number:	N/A - mixture
Chemical Name & Synonyms:	N/A - mixture		
Appearance:	Pale yellow water solution with no significant odor.		
Use:	General purpose soft soldering flux, corrosive residue.		
Manufacturer:	Force Industries Division Tel. 610-647-3575		
EMERGENCY PHONE No.	CALL CHEMTREC (800) 424-9300 * Available 24 Hours		

II. CHEMICAL COMPOSITION

Material	SARA III	CAS Number	OSHA PEL	ACGIH TLV
Zinc Chloride	25 - 40%	7646-85-7	1 mg/m^3	1 mg/m^3
Hydrochloric Acid	2.0- 10%	7647-01-0	7 mg/m^3	7.5 mg/m^3
Monoethanolamine.HCl	2.0- 10%	2002-24-6	3 mg/m^3	Eye Irritant
Ammonium Chloride	2.0- 10%	12125-02-9	10 mg/m^3	5 mg/m^3

Others, if any, are non-hazardous and are claimed as trade secret.

Hazard Rating: HMIS: (H =3 F=0 R=0 PE=C) NFPA: (H=3 F=0 R=0)

III. POTENTIAL HEALTH EFFECTS AND HEALTH HAZARD DATA

Target organ statement:	DANGER. Causes severe burns to skin, eyes, and respiratory system.
Effects of Chronic Exposure:	Contact burns, irritation to skin (scarring), eyes and respiratory system. Possible liver and kidney effects.
Effects of Acute Overexposure	
Swallowing:	Can cause damage to digestive system. Corrosive to mucous membranes.
Skin Absorption:	Burns; immediate hazard.
Inhalation:	Irritation to respiratory system. Coughing and sneezing. Existing lung disorders will be aggravated.
Skin Contact:	Dermatitis, possible chemical burns, corrosive to skin. Existing disorders will be aggravated.
Eye Contact:	Irritation to eyes, tearing, burn of eye surfaces, corrosive to eyes, may cause blindness.

IV. EMERGENCY AND FIRST AID PROCEDURES

Swallowing:	Call a physician or Poison Control Center. Do not induce vomiting. Give large quantities of water, milk, or 5% sodium bicarbonate solution.
Skin:	Promptly flush with water to remove all residue. If rash or burn develops, consult a physician. Material is corrosive.
Inhalation:	Remove to fresh air. If fumes are inhaled, call a physician. Provide oxygen.
Eyes:	Flush with water for at least 15 minutes to remove all residue. Get medical help immediately.

V. FIRE AND EXPLOSION DATA

Flashpoint (°F):	N/A
Flammable limits in air	LOWER: N/A UPPER: N/A (% by volume)
Extinguishing media:	Water, fog, or foam
Special firefighting procedures:	Full protective equipment required. May release zinc oxide and HCl fumes. Toxic metal halide fumes produced.
Unusual fire and explosion hazards:	Dense smoke may be generated.

VI. REACTIVITY INFORMATION

Stability considerations/Conditions to avoid:	Stable/None
Hazardous polymerization/Conditions to avoid:	Will not occur/None
Incompatibility/Materials to avoid:	Acid may react with metals to produce explosive gas.
Hazardous combustion or, Decomposition products:	Carbon dioxide, water, hydrochloric acid, ammonia, oxides of nitrogen, zinc oxide.

VII. SPILL AND LEAK RESPONSE

Steps to be taken if material is released or spilled:	Contain spill, absorb, sweep-up and dispose. Flush area to chemical sewer. Soda ash (sodium carbonate) is neutralizer for acid.
Waste disposal method:	Dispose of in accordance with all federal, state, and local regulations.

VIII. SPECIAL PROTECTION INFORMATION

Respiratory protection:	If the workstation is not properly ventilated to exhaust all fumes and vapors, use a NIOSH approved mask.
Ventilation:	Maintain air flow away from user to remove all fumes and vapors, so that the PEL is never exceeded. Adhere to environmental regulations for exhausts.
Protective gloves:	Chemical and acid impervious
Eye protection:	Chemical tight safety goggles. Do NOT wear contact lenses.
Other protective equipment:	Full protective equipment normally used in a brazing operation so as to prevent any contact. Review operations to avoid contact with hazardous gas, liquids or solids. See also: 29 CFR 1910.132 - 29 CFR 1910.140. Personal Protective Equipment 29 CFR 1910.251 - 29 CFR 1910.257. Welding, Cutting and Brazing

IX. STORAGE, HANDLING AND SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage:	Store flux at ambient conditions. Wash thoroughly after handling to remove all residue.
Other precautions:	Do not take internally. Avoid eye and skin contact. Avoid inhaling mist or dust. Professionally wash contaminated clothing before re-use.

X. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (°F @ 760 mmHg):	>212	Specific gravity (H_2O = 1 @ 72°F):	1.38
Vapor density (air = 1):	N/E	Vapor pressure:	N/E
Percent volatiles by volume:	N/E	Solubility in water:	Appreciable
Evaporation rate (butyl acetate = 1):	<1		

XI. OPTIONAL INFORMATION

Department of Transportation:	DOMESTIC GROUND
Proper shipping name:	Corrosive liquid, N.O.S. (Zinc Chloride, Hydrochloric Acid)
Hazard Class:	Class 8
ID & Packing Group Number:	UN 1760, PG III
ERG Guide Number:	154

Toxic Substance Control Act: All components of this compound are listed within the TSCA inventory.

SARA Title III Program: This product contains the following toxic chemicals subject to the reporting requirements of EPCRA of 1986 and 40 CFR 372. This information must be included in all MSDS that are copied and distributed for this material.

Chemical Name	CAS No.	Concentrations
Zinc Compounds	N/A	<50%
Hydrochloric Acid	7647-01-0	<20%

State Right-to-Know Programs:

Pennsylvania: This product contains the following chemicals listed in PA Code Title 34, Hazardous Substance List: Ammonium chloride, zinc chloride and hydrochloric acid.

California: This product contains the following compounds subject to the reporting and labeling requirements of Proposition 65: None

RQ aggregate values apply for RCRA, CERLA, and SARA.

NOTES: NA=Not Applicable NE=Not Established H=Health
F=Fire R=Reactivity PE=Personal Equipment

36 Canfield
7 pgs

CANFIELD TECHNOLOGIES, LLC

BOW ELECTRONIC SOLDERS

Safety Data Sheet
According to 1907-2006/EC, Article 31

Version: 1.0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: **100% Watersafe Lead Free Solid Wire Solder Alloy**

Details of the supplier of the safety data sheet:

This Safety Data Sheet has been updated in accordance with the Globally Harmonized System (GHS).

Manufacturer Name: Canfield Technologies/BOW Electronic Solders

Address: 1 Crossman Road, Sayreville, NJ 08872

General Phone Number: 732-316-2100

INFOTRAC 24 Hour Emergency Telephone Number: 1-800-535-5053

SDS Creation Date 6-Jan-15

SDS Revision Date: 6-Jan-15

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) NO 1272/2008

GHS08 Health Hazard

Resp. Sens. 1 **H334** May cause allergy or asthma symptoms or breathing difficulties if inhaled.

GHS07

Skin Sens. 1B **H317** May cause an allergic skin reaction.

Label elements

Labeling according to Regulation (EC) No 1272/2008

The product is classified and labeled according to the CLP regulation.

Hazard pictograms

GHS08

Signal word Danger

Hazard Statements

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

Precautionary statements

P285 In case of inadequate ventilation wear respiratory protection.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor or physician if you feel unwell.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P302+P350 IF ON SKIN: Gently wash with plenty of soap and water.

P501 Dispose of contents/container in according with local/regional/national regulations.

Hazard description:

WHMIS Hazard Symbols

D2B- Toxic material causing other toxic effects.

Classification system:
NFPA ratings (scale 0-4)

Health = 1
Fire =0
Reactivity = 0

Health = 1
Fire = 0
Reactivity=0

Other hazards
Results of PBT and vPvB assessment
PBT : Not applicable
vPvB: Not applicable

3 COMPOSITION OF MIXTURE

Chemical characterization : Mixtures
Description: Mixtures of the substances listed below with nonhazardous additions.

CAS No.	**Description**	% Range
CAS: 7440-31-5 EINECS:231-141-8	Tin	94-97%
CAS: 7440-22-4 EINECS: 231-131-3	Silver	0.2 -.5%
CAS: 7440-50-8 EINECS:231-159-6	Copper	3.5-4.5%

Additional information:
This solder product does not contain any Substance of very High Concern (SVHC) on the European Chemicals Agency (ECHA) CANDIDATE LIST.

4 FIRST AID MEASURES

Description of first aid measures
After inhalation: Supply fresh air, consult doctor in case of complaints.
After skin contact: Immediately wash with water and soap and rinse thoroughly.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing: Seek immediate medical advise.
Information for doctor:
Most important symptoms and effects, both acute and delayed.
Indication of any immediate medical attention and special treatment needed.

5 FIREFIGHTER MEASURES

Extinguishing media
Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.
Special hazards arising from the substance or mixture
In case of fire, the following can be released:
Carbon monoxide (CO)
Carbon dioxide (CO2)
Advise for fire fighters
Protective equipment: Wear self-contained respiratory protective device.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Ensure adequate ventilation
Environmental precautions: Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and clearing up:
Dispose contaminated material as waste in accordance to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 HANDLING AND STORAGE

Handling:

Precautions for safe handling: Prevent formation of dust

Information about protection against explosions and fires: No further data.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility: not required.

Further information about storage conditions: None.

Specific end use(s) No further relevant information available.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems: No further data.

Control parameters

Components with limit values that require monitoring at the workplace:

Tin 7440-31-5

PEL	2mg/m³
	Metal
REL	2mg/m³
TLV	2mg/m³
	Metal

Silver 7440-22-4

PEL	0.01 mg/m³
	metal and soluble compounds (as Ag)
REL	0.01 mg/m³
TLV	0.1 mg/m³
	metal: dust and fume

Additional information:

PEL = Permissible Exposure Limit (OSHA)

TLV= Threshold Limit Value (ACGIH)

OSHA = Occupational Safety and Health Administration.

ACGIH= American Conference of Governmental Industrial Hygienists

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Breathing equipment:

Exposure controls: use appropriate engineering control such as process enclousures, local exhaust ventilation to control Airborne levels below recommended exposure limits.

When ventilation is not sufficient to remove airborne levels from the breathing zone, a NIOSH safety approved respirator or Self-contained breathing apparatus should be worn. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

Protection of hands:

Protective gloves

Material of gloves:

Nitrile rubber, NBR

Natural rubber. NR

Penetration time of glove material:
The exact break through time has to be found out by the manufacturer of the protective gloves and to be observed.
Eye protection :

Face Shield or safety glasses

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
General Information
Appearance :
Form: Solid Metal in wire, ribbon, bar
Color: Silver grey
Odor: Mild
pH-value: Not determined.
Change in condition
Melting point/melting range: 217°C (423 °F)
Flash point : Undetermined.
Auto igniting: Product is not self igniting.
Danger of explosion: Product does not present an explosion hazard.
Density at 20°C (68°F): 3.5 g/cm³ (29.208 lbs/gal)
Solubility in / miscibility with Water: Insoluble.
Bulk density at 20 C (68 F): 4000 Kg/m³
Solids Content: 100.00%
Organic Content: 0.00%

10. STABILITY AND REACTIVITY

Reactivity
Chemical stability
Thermal decomposition /conditions to be avoided: No decomposition if used according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Conditions to avoid No further relevant information available.
Incompatible materials: Strong acids, strong oxidizers.
Hazardous decompositions products: No dangerous decomposition products known.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:
Primary irritant effect:
On the skin: Irritant to skin and mucous membranes.
On the eye: Irritant effect.
Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations: Irritant
Carcinogenic categories
IARC (International Agency for Research on Cancer) None of the ingredients is listed.
NTP (National Toxicology Program)

12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity: No further relevant information available.
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Result of PBT and vPvB assessment
PBT: Not applicable.

VPvB: Not applicable.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation:
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.
Uncleaned packaging's:
Recommendations: Disposal must be made in accordance to regulations.

14. TRANSPORT INFORMATION

UN- NUMBER	Not applicable.
DOT, IMDG, ADN, IATA	Not applicable.
ADR	Not applicable.
UN proper shipping name	Not applicable.
DOT, ADN,ADR	Not applicable.
IMDG, IATA	Not applicable.
Transport hazard class (es)	
DOT, IMDG	Not applicable.
Class	Not applicable.
ADR, ADN, IATA	
Class	Not applicable.
Packing group	
DOT, ADR, IMDG, IATA	Not applicable.
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78	
and the IBC Code	Not applicable.

15. REGULATORY INFORMATION

Safety , Health and environmental regulation/ legislation specific for the substance or mixture

USA The following information relates to product regulation specific to the USA.

SARA (Superfund Amendments and Reauthorization Act)

Section 355 (Extremely hazardous substances):

None of the ingredients is listed

Section 313 (Specific toxic chemical listings):

7440-22-4 Silver

7440-50-8 Copper

TSCA (Toxic Substances Control Act): Canfield Technologies certifies that all components listed below for the subject finished Product are on the TSCA Inventory of chemical Substance and are not subject to any chemical specific regulation under TSCA Section 12(b) export notification requirements delineated at 40 CFR part 707, subpart D.

All ingredients are listed or exempt from listing.

California Proposition 65

Chemicals known to cause cancer: None of the ingredients is listed.

Chemicals known to cause reproductive toxicity: None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

7440-22-4 Silver

7440-50-8 Copper

NIOSH-CA (NATIONAL Institute for Occupational Safety and Health)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

CANADA:

Workplace Hazardous Materials Identification (WHMIS):

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the Safety Data Sheet (SDS) contains all of the information required by the CPR.

Labeling according to Regulation (EC) NO 1272/2008

The product has classified and labeled according to the CLP regulation.

Hazard pictograms

GHS08

Signal word Danger

Hazard-determining components of labeling:

Gum Rosin

Hazard statements

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

Precautionary statements

P285 In case of inadequate ventilation wear respiratory protection.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 IF SWALLOWED : Call a POISON CENTER or doctor or physician if you feel unwell.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P302+P350 IF ON SKIN: Gently wash with plenty of soap and water.

P501 Dispose of contents/container in according with local/regional/national regulations.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 OTHER INFORMATION

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Canfield Technologies extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. This Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Safety Data Sheet as a source for hazard information.

Abbreviations and acronyms:

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.

ICAO: International Civil Aviation Organization.

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

IMDG: International Maritime Code for Dangerous Goods.

DOT: US Department of Transportation.

IATA: International Air Transport Association.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

NFPA: National Fire Protection Association (USA).

HMIS : Hazardous Materials Identification System (USA).

WHMIS: Workplace Hazardous Materials Information System (Canada).

LC50: Lethal concentration, 50 percent.

LD50: Lethal dose, 50 percent.

Data compared to the previous version altered.

36 SIL-FOS
7 pgs

Silver-Copper-Phosphorus Alloys

Safety Data Sheet

1. Product and Company Identification

Manufacturer

Lucas-Milhaupt, Inc.
5656 South Pennsylvania Avenue
Cudahy, WI 53110 USA
Telephone: 414-769-6000
www.lucasmilhaupt.com

Emergency Phone Number

CHEMTREC : within USA or Canada 1-800-424-9300
CHEMTREC : outside USA or Canada 1-704-741-5970

SDS Number: 77

Product: AG-CU-P

Product Codes: 28704 (SIL-FOS 10), 71-100 (SIL-FOS 10), 34286 (SIL-FOS 5M), 26310 (SIL-FOS 1), 27953 (SIL-FOS 1), 2774 (SIL-FOS 2), 71-020 (SIL-FOS 2), 34649 (SIL-FOS 2F), 28134 (SIL-FOS 2M), 35502 (SIL-FOS 2M), 71-017 (SIL-FOS 2M), 35503 (SIL-FOS 5), 25841 (SIL-FOS 5), 7054 (SIL-FOS 5)), 71-050 (SIL-FOS 5), 28118 (SIL-FOS 5F), 71-052 (SIL-FOS 5F), 17152 (HANDY-FLO 6), 71-062 (HANDY-FLO 6), 17244 (HANDY-FLO 6), 35542 (SIL-FOS 6i), 71-063 (SIL-FOS 6i), 28126 (SIL-FOS 6), 71-060 (SIL-FOS 6), 29538 (SIL-FOS 15),7153 (SIL-FOS 15), 71-150 (SIL-FOS 15), 26047 (SIL-FOS 15), 35528 (SIL-FOS 15), 35544 (SIL-FOS 15LP), 19422 (SIL-FOS 18W), 31138 (SIL-FOS 18M), 35207 (SIL-FOS 18M),71-181 (SIL-FOS 18M), 35216 (SIL-FOS 18), 71-180 (SIL-FOS 18)

Product Use(s): Alloys for brazing and other metallurgical processes

2. Hazards Identification

Classification(s): None applicable

Label Symbol(s): None applicable

Label Signal Word(s): None applicable

Label Hazard Statement(s): None applicable

Label Precautionary Statement(s)

The acute toxicities of 74-94% of the product's ingredients are unknown.

3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Copper	7440-50-8	74-94	None known
Phosphorus	7723-14-0	2-8	None known
Silver	7440-22-4	<1-19	None known

4. First Aid Measures

Eye

Flush affected areas with water for at least fifteen minutes. Seek medical assistance if necessary.

Skin

Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary. Launder or dry-clean clothing before reuse.

Ingestion

If subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical assistance. Do not give anything by mouth to an unconscious or convulsive person.

Inhalation

If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.

Note to Physician or Poison Control Center

None of the components are acutely toxic by ingestion, nor are they absorbed through the skin. Long-term chronic exposure may cause argyria.

5. Fire Fighting Measures

Fire and Explosion Hazards

These products are non-flammable and non-explosive. If present in a fire or explosion, they may emit fumes of the constituent metals and/or phosphorus pentoxide.

Extinguishing Media

Use dry chemical. Do not use water.

Fire Fighting Instructions

If fighting a fire in which these products are present, wear a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

6. Accidental Release Measures

Methods and Materials

If a finely-divided form of product is spilled, clean up spillage so as to minimize dispersion of dust. Either wet sweeping or vacuuming using HEPA filtration is recommended.

Personal Precautions

Avoid contact with skin, eyes, and mucous membranes.

Environmental Precautions

Prevent spills from entering sewers or contaminating soil.

7. Handling and Storage

Handling Precautions

No special handling precautions are required.

Work and Hygiene Practices

To prevent ingestion following use of the product, wash hands and face before eating, drinking, applying cosmetics, or using tobacco. Remove contaminated clothing or protective equipment before entering eating/drinking areas.

Storage Precautions

Do not store in proximity to incompatible materials (see Section #10).

8. Exposure Controls and Personal Protection

Ingredients - Exposure Limits

Copper
ACGIH TLVs: 0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists)
OSHA PELs: 0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists)
Phosphorus
No applicable ACGIH TLV(s) No applicable OSHA PEL(s)
Silver
ACGIH TLV: 0.1 mg/m3 TWA (metal) OSHA PEL: 0.01 mg/m3 TWA

Ingredients - Biological Limits

Copper
No ACGIH BEI(s) or other biological limit(s)
Phosphorus
No ACGIH BEI(s) or other biological limit(s)
Silver
No ACGIH BEI(s) or other biological limit(s)

Engineering Controls

Use dilution or local exhaust ventilation adequate to maintain concentrations of all components and their byproducts to within their applicable standards.

Eye/Face Protection

Wear eye protection adequate to prevent eye contact with the product and injury if the product is used with a flame. Plastic-frame spectacles with side shields are recommended.

Skin Protection

Wear protective gloves and clothing to prevent skin injuries if the product is used with a flame. Avoid flammable fabrics.

Respiratory Protection

If an exposure level to a component(s) exceeds an applicable standard, use a NIOSH-approved respirator having a configuration (facepiece, filter media,

assigned protection factor, etc.) effective for the concentration of the component(s) generated. For guidance on selection and use of respirators, consult American National Standard Z88.2 (ANSI, New York, NY 10036, USA).

9. Physical and Chemical Properties

Appearance: Yellow-white metals, various forms
Odor: none
Odor threshold: not applicable
pH: not applicable
Melting Point: approx. 1,178F./637C.
Freezing point: not applicable
Boiling point/boiling range: not determined
Flash Point: not applicable
Evaporation Rate: not applicable
Flammability Class: not applicable
Lower Explosive Limit: not applicable
Upper Explosive Limit: not applicable
Vapor pressure: not applicable
Vapor density: not applicable
Relative density (H2O): 7.4-8.6
Solubility (H2O): insoluble
Oil-water partition coefficient: not applicable
Autoignition Point: not applicable
Decomposition temperature: not applicable
Viscosity: not applicable

10. Stability and Reactivity

Reactivity: none reasonably foreseeable
Stability: stable
Hazardous Polymerization: will not occur
Risk of Dangerous Reactions: silver and copper can form unstable acetylides in contact with acetylene gas.

Incompatible Materials

Strong oxidizers; ammonia; azides; nitric acid; ethylene imine; sulfuric acid; chlorine trifluoride; inorganic and organic peroxides; peroxyformic acid; oxalic acid; bromates, chlorates, and iodates of alkali and alkali earth metals; tartaric acid; 1-bromo-2-propyne; permonosulfuric acid; alkaline hydroxides.

Hazardous Decomposition Products

Heating to elevated temperatures may liberate fumes of the constituent metals and/or phosphorus pentoxide.

10. Toxicological Information

Ingredients - Toxicological Data

Copper
LD50: No data available LC50: No data available
Phosphorus
LD50: >15,000 mg/kg (oral/rat) LC50: 4,300 mg/m3 for 1 hr (rat)
Silver
LD50: >2,000 mg/kg (oral/rat) LC50: No data available

Primary Routes(s) of Entry

Ingestion; inhalation.

Eye Hazards

Eye contact with these products in finely-divided forms may cause irritation, conjunctivitis, ulceration of the cornea, and/or argyria, a permanent gray discoloration of the eyes, skin, mucous membranes, and respiratory tract.

Skin Hazards

Skin contact with these products in finely-divided forms may cause irritation, argyria, discoloration, and/or contact dermatitis.

Ingestion Hazards

Ingestion of these products may cause nausea, vomiting, and gastrointestinal irritation.

Inhalation Hazards

Inhalation of toxicologically-significant quantities of the components is unlikely when the product is used in accordance with instructions and specified protective measures (see Section #8). When phosphorus is overheated in air, it is converted to phosphorus pentoxide, which is corrosive and irritating to eyes, nose, throat, and mucous membranes.

Symptoms Related to Overexposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation overexposure, particularly as fume.

Delayed Effects from Long Term Overexposure

Chronic overexposure by inhalation and/or ingestion may aggravate pre-existing diseases of the liver, kidneys, and gastrointestinal system.

Carcinogenicity

The product contains no chemicals classified as potential or demonstrated carcinogens by IARC, NTP, or OSHA.

Germ Cell Mutagenicity

The product contains no chemicals determined to be germ cell mutagens.

Reproductive Effects

The product contains no chemicals determined to be damaging to fertility or to the unborn child.

Acute Toxicity Estimates

LD50 (oral): >2,000 mg/kg
LD50 (dermal): no data available
LC50: 4,300 mg/m3

Interactive Effects of Components: no data available

12. Ecological Information

No ecological data is available for the product or any of its components.

Ozone Depletion Potential: This product contains no ingredients listed in the Annexes to the Montréal Protocol on Substances that Deplete the Ozone Layer.

13. Disposal Considerations

Do not discharge waste product into sanitary or storm sewers or allow it to contaminate soil. Consult applicable Federal, State/Provincial, and local regulations.

14. Transport Information

Transport is not regulated by USDOT, TDG (Canada), IATA, or IMO.

15. Regulatory Information

United States Regulatory Information

All components of this product are listed on the EPA's TSCA inventory.

SARA Hazard Classes: Chronic Health Hazard

SARA Section 313 Notification

This product contains these components in concentrations >1% (>0.1% for carcinogens) subject to Section 313 of the Emergency Preparedness and Community Right-to-Know Act (EPCRA) of 1986 and of 40CFR, Part 372:

1. Copper (CASRN 7440-50-8)
2. Phosphorus (CASRN 7723-14-0)
3. Silver (CASRN 7440-22-4)

Canadian Regulatory Information

All components of these products are listed on either the Domestic Substances List (DSL) or the Nondomestic Substances List (NDSL).

WHMIS Class(es) and Division(s): D2B
Components on Ingredients Disclosure List:

1. Copper, elemental (CASRN 7440-50-8)
2. Phosphorus (CASRN 7723-14-0)
3. Silver, elemental (CASRN 7440-22-4)

This product has been classified according to the hazard criteria of the CPR and this SDS contains all of the information required by the CPR.

16. Other Information

HMIS Ratings (Legend)

Health - 2* (moderate chronic hazard)
Flammability - 1 (slight hazard)
Physical Hazard - 0 (minimal hazard)
PPE - see Note

Note: Lucas-Milhaupt Inc. recommends use of protective eyewear and gloves (Personal Protection Index "B") as standard PPE. HMIS recommends that its ratings be used only in conjunction with a fully implemented HMIS program, and that specific PPE codes be created by the user, who is familiar with the actual conditions under which the product is used. We cannot anticipate every condition of the product's use, and it is the user's responsibility to evaluate the hazards pertinent to its specific operations, and to determine the specific PPE required.

NFPA Ratings

Health - 2 Flammability - 1 Reactivity - 0

Preparation Information

Date of Preparation: 22 December 2015
Date of Prior SDS: 8 December 2014

Disclaimer

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Lucas-Milhaupt, Inc.

66 R2230
6 pgs

Dynatemp 22

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/12/2016 Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance

Substance name : Dynatemp 22

Chemical name : 75-45-6

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Refrigerant

1.3. Details of the supplier of the safety data sheet

Dynatemp International, Inc.
100 Sterling Parkway, Suite 111
Mechanicsburg, PA 17050
Phone: 1-800-791-9232, (outside the U.S.: +1-717-249-0157)
Fax: 717-249-9043
www.Dynatempintl.com
Email: info@dynatempintl.com

1.4. Emergency telephone number

Emergency number : Contact Chemtrec at 800.424.9300 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Liquefied gas H280

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS04

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated

Precautionary statements (GHS-US) : P410+P403 - Protect from sunlight. Store in a well-ventilated place

2.3. Other hazards

Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250°C), decomposition products may include hydrofluoric acid (HF) and carbonyl halides such as phosgene. Rapid evaporation of the liquid may cause frostbite.

2.4. Unknown acute toxicity (GHS-US)

None of the ingredients are of unknown toxicity

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name : Dynatemp 22

Name	Product identifier	%	Classification (GHS-US)
Chlorodifluoromethane	(CAS No) 75-45-6	100	Liquefied gas, H280

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable – product is a mixture

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

Notes to physician: Because of the possible disturbances of cardiac rhythm, catecholamine drugs such as epinephrine should be used with special caution and only insituations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand. Use agent that is most appropriate for type of surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Cylinders are equipped with pressure and temperature relief devices but may still rupture under fire conditions. Decomposition may occur. This substance is not flammable in air at temperatures up to 100°C (212°F) at atmospheric pressure. However, mixtures of this substance with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place. Keep container closed when not in use.

Incompatible products	: Strong bases. Strong acids.
Incompatible materials	: Sources of ignition. Direct sunlight.
Storage area	: Store in a well-ventilated place. Protect cylinder and its fittings from physical damage. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chlorodifluoromethane (75-45-6)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	Not applicable	

8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: Not required under normal conditions. If concentrations exceed exposure limits, use NIOSH approved respirator.
Other information	: Do not eat, drink or smoke during use.
Engineering Controls	: Ensure adequate ventilation, especially in confined areas. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Clear, colorless liquid and vapor
Color	: Colorless
Odor	: Faint ethereal
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: -40.8 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: > 1
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: 10439 hPa
Relative density	: No data available
Relative vapor density at 20 °C	: 3
Relative density of saturated gas/air mixture	: 1.19
Density	: 1.191 g/cm³
Solubility	: Water: 2.6 g/l
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: 632 °C
Viscosity	: No data available
Viscosity, kinematic	: No data available

Viscosity, dynamic : No data available

9.2. Other information

Gas group : Liquefied gas

SECTION 10: Stability and reactivity

10.1. Reactivity

Decomposes on heating

10.2. Chemical stability

Stable at normal temperatures and storage conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Halogens, halogen acids and possibly carbonyl halides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Chlorodifluoromethane (75-45-6)	
LC50 inhalation rat (ppm)	220000 ppm/4h
ATE US (gases)	220000.000 ppmV/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Chlorodifluoromethane (75-45-6)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Dynatemp 22	
LC50 fish 1	777 mg/l
EC50 Daphnia 1	433 mg/l
EC50 other aquatic organisms 1	250 mg/l

12.2. Persistence and degradability

Dynatemp 22	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Dynatemp 22	
Bioaccumulative potential	Not established.

Chlorodifluoromethane (75-45-6)	
BCF fish 1	(no significant bioaccumulation)
Log Pow	1.08

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local, state and federal regulations. Cylinder can be re-used after re-conditioning. Recover, reclaim by distillation or remove to a permitted waste disposal facility. Comply with applicable federal, state/provincial and local regulations. Empty pressure vessels should be returned to the supplier.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1018 Refrigerant gas R 22, 2.2

UN-No.(DOT) : UN1018

Proper Shipping Name (DOT) : Refrigerant gas R 22

Department of Transportation (DOT) Hazard Classes : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Special Provisions (49 CFR 172.102) : T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 306

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Dynatemp 22	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Sudden release of pressure hazard

Chlorodifluoromethane (75-45-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0% deminimis reporting level

15.2. International regulations

CANADA

Chlorodifluoromethane (75-45-6)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas

EU-Regulations

Chlorodifluoromethane (75-45-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

Chlorodifluoromethane (75-45-6)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Pollutant Release and Transfer Register Law (PRTR Law) Listed on the Canadian IDL (Ingredient Disclosure List) Listed on INSQ (Mexican national Inventory of Chemical Substances) Listed on Turkish inventory of chemical

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information : None.

Full text of H-phrases:

Liquefied gas	Gases under pressure Liquefied gas
H280	Contains gas under pressure; may explode if heated

SDS US (GHS HazCom 2012)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

66 R410A
7 pgs

Dynatemp 410A

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of Issue: 04/12/2016 Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : Dynatemp 410A

Other means of identification : R410A

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Refrigerant

1.3. Details of the supplier of the safety data sheet

Dynatemp International, Inc.
100 Sterling Parkway, Suite 111
Mechanicsburg, PA 17050
Phone: 1-800-791-9232, (outside the U.S.: +1-717-249-0157)
Fax: 717-249-9043
www.Dynatempintl.com
Email: info@dynatempintl.com

1.4. Emergency telephone number

Emergency number : Contact Chemtrec at 800.424.9300 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Liquified gas H280

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS04

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated

Precautionary statements (GHS-US) : P410+P403 - Protect from sunlight. Store in a well-ventilated place

2.3. Other hazards

Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250°C), decomposition products may include hydrofluoric acid (HF) and carbonyl halides such as phosgene. Rapid evaporation of the liquid may cause frostbite.

2.4. Unknown acute toxicity (GHS US)

None of the ingredients are of unknown toxicity.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable – this product is a mixture.

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Ethane, pentafluoro-	(CAS No) 354-33-6	50	Liquefied gas, H280
Difluoromethane	(CAS No) 75-10-5	50	Liquefied gas, H280

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

Notes to physician: Because of the possible disturbances of cardiac rhythm, catecholamine drugs such as epinephrine should be used with special caution and only insituations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand. Use agent that is most appropriate for type of surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Cylinders are equipped with pressure and temperature relief devices but may still rupture under fire conditions. Decomposition may occur. This substance is not flammable in air at temperatures up to 100°C (212°F) at atmospheric pressure. However, mixtures of this substance with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place. Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Storage area : Store in a well-ventilated place. Protect cylinder and its fittings from physical damage. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Difluoromethane (75-10-5)		
Mfg's Acceptable Exposure Limit	TWA (8 hr) (ppm)	1000 ppm

Ethane, pentafluoro- (354-33-6)		
WEEL (AIHA)	Workplace Environmental Exposure Level (WEEL) Guide TWA (ppm)	1000 ppm

8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : Wear protective gloves.

Eye protection : Chemical goggles or safety glasses.

Respiratory protection : Not required under normal conditions. If concentrations exceed exposure limits, use NIOSH approved respirator.

Other information : Do not eat, drink or smoke during use.

Engineering Controls : Ensure adequate ventilation, especially in confined areas. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Clear, colorless liquid and vapor

Color : Clear, Colorless

Odor : Faint ethereal

Odor threshold : No data available

pH : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : -48.5 °C

Flash point : No data available

Relative evaporation rate (CCl_4=1) : > 1

Flammability (solid, gas) : No data available

Explosion limits : No data available

Explosive properties : No data available

Oxidizing properties : No data available

Vapor pressure 21.1 °C : 14,844 hPa, 11,894 mm Hg

Vapor pressure at 54.4 °C : 33,798 hPa, 26,111 mm Hg

Relative density : 1.08

Relative vapor density (air=1)	: 3
Molecular mass	: 72.6 g/mol
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: > 750 °C
Decomposition temperature	: > 250 °C
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

VOC content	: 0
Gas group	: Liquefied gas

SECTION 10: Stability and reactivity

10.1. Reactivity

Decomposes on heating

10.2. Chemical stability

Stable at normal temperatures and storage conditions

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Halogens, halogen acids and possibly carbonyl halides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Difluoromethane (75-10-5)	
LC50 inhalation rat (mg/l)	1890 g/m³ (Exposure time: 4 h)
ATE US (vapors)	1890.000 mg/l/4h
ATE US (dust, mist)	1890.000 mg/l/4h

Ethane, pentafluoro- (354-33-6)	
LC50 inhalation rat (mg/l)	2910 g/m³ (Exposure time: 4 h)
ATE US (vapors)	2910.000 mg/l/4h
ATE US (dust, mist)	2910.000 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

Dynatemp 410A	
Persistence and degradability	Not established.
Difluoromethane (75-10-5)	
Persistence and degradability	Not established.
Ethane, pentafluoro- (354-33-6)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Dynatemp 410A	
Bioaccumulative potential	Not established.
Difluoromethane (75-10-5)	
Bioaccumulative potential	Not established.
Ethane, pentafluoro- (354-33-6)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local, state and federal regulations. Cylinder can be re-used after re-conditioning. Recover, reclaim by distillation or remove to a permitted waste disposal facility. Empty pressure vessels should be returned to the supplier.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

Transport document description : UN3163 Liquefied gas, n.o.s., 2.2

UN-No.(DOT) : UN3163

Proper Shipping Name (DOT) : Liquefied gas, n.o.s.

Department of Transportation (DOT) Hazard Classes : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102)	:	T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	306
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	150 kg
DOT Vessel Stowage Location	:	A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

ADR

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Dynatemp 410A	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Sudden release of pressure hazard

Difluoromethane (75-10-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethane, pentafluoro- (354-33-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Difluoromethane (75-10-5)	
WHMIS Classification	Class A - Compressed Gas

Ethane, pentafluoro- (354-33-6)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

EU-Regulations

Difluoromethane (75-10-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethane, pentafluoro- (354-33-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

Difluoromethane (75-10-5)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) Inventory Listed on the Japanese ISHL (Industrial Safety and Health Law) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Ethane, pentafluoro- (354-33-6)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) Inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information : None.

Full text of H-phrases:

Compressed gas	Gases under pressure Compressed gas
Liquefied gas	Gases under pressure Liquefied gas
H280	Contains gas under pressure; may explode if heated

SDS US (GHS HazCom 2012)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

66 R421A

7 pgs

CHOICE R-421A

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/12/2016 Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : CHOICE R-421A

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Refrigerant

1.3. Details of the supplier of the safety data sheet

Dynatemp International, Inc.
100 Sterling Parkway, Suite 111
Mechanicsburg, PA 17050
Phone: 1-800-791-9232, (outside the U.S.: +1-717-249-0157)
Fax: 717-249-9043
www.Dynatempintl.com
Email: info@dynatempintl.com

1.4. Emergency telephone number

Emergency number : Contact Chemtrec at 800.424.9300 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Liquefied gas H280

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS04

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated

Precautionary statements (GHS-US) : P410+P403 - Protect from sunlight. Store in a well-ventilated place

2.3. Other hazards

Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250°C), decomposition products may include hydrofluoric acid (HF) and carbonyl halides such as phosgene. Rapid evaporation of the liquid may cause frostbite..

2.4. Unknown acute toxicity (GHS-US)

None of the ingredients are of unknown toxicity.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable -- this product is a mixture.

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Ethane, pentafluoro-	(CAS No) 354-33-6	58	Liquefied gas, H280
1,1,1,2-Tetrafluoroethane	(CAS No) 811-97-2	42	Liquefied gas, H280

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact	:	Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact	:	Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion	:	Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Notes to physician: Because of the possible disturbances of cardiac rhythm, catecholamine drugs such as epinephrine should be used with special caution and only insituations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries	:	Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Foam. Dry powder. Carbon dioxide. Water spray. Sand. Use agent that is most appropriate for type of surrounding fire.
Unsuitable extinguishing media	:	Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Cylinders are equipped with pressure and temperature relief devices but may still rupture under fire conditions. Decomposition may occur. This substance is not flammable in air at temperatures up to 100°C (212°F) at atmospheric pressure. However, mixtures of this substance with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source.

5.3. Advice for firefighters

Firefighting instructions	:	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting	:	Do not enter fire area without proper protective equipment, including self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	:	Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	:	Equip cleanup crew with proper protection.
Emergency procedures	:	Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	:	Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Keep only in the original container in a cool, well ventilated place. Keep container closed when not in use.
Incompatible products	:	Strong bases. Strong acids.
Incompatible materials	:	Sources of ignition. Direct sunlight.
Storage area	:	Store in a well-ventilated place. Protect cylinder and its fittings from physical damage. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1,1,1,2-Tetrafluoroethane (811-97-2)		
WEEL (AIHA)	Workplace Environmental Exposure Level (WEEL) Guide TWA (ppm)	1000 ppm

Ethane, pentafluoro- (354-33-6)		
WEEL (AIHA)	Workplace Environmental Exposure Level (WEEL) Guide TWA (ppm)	1000 ppm

8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : Wear protective gloves.

Eye protection : Chemical goggles or safety glasses.

Respiratory protection : Not required under normal conditions. If concentrations exceed exposure limits, use NIOSH approved respirator.

Other information : Do not eat, drink or smoke during use.

Engineering Controls : Ensure adequate ventilation, especially in confined areas. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Clear, coloriess gas

Color : Clear

Odor : No data available

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : -40.2 °C

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapor pressure at 21.1 °C : 7,059 mm Hg

Vapor pressure at 21.1 °C : 9,411 hPa

Relative vapor density at 20 °C : No data available

Relative density : No data available

Solubility : Nil (in water)

Log Pow : No data available

Log Kow : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

Explosive properties : No data available

Oxidizing properties : No data available

Explosive limits : No data available

9.2. Other information

VOC content : 0 g/l

Gas group : Liquefied gas

SECTION 10: Stability and reactivity

10.1. Reactivity

Decomposes on heating

10.2. Chemical stability

Stable at normal temperatures and storage conditions

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Halogens, halogen acids and possibly carbonyl halides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

1,1,1,2-Tetrafluoroethane (811-97-2)	
LC50 inhalation rat (mg/l)	1500 g/m³ (Exposure time: 4 h)

Ethane, pentafluoro- (354-33-6)	
LC50 inhalation rat (mg/l)	2910 g/m³ (Exposure time: 4 h)

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

CHOICE R-421A	
Persistence and degradability	Not established.

1,1,1,2-Tetrafluoroethane (811-97-2)	
Persistence and degradability	Not established.

Ethane, pentafluoro- (354-33-6)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

CHOICE R-421A	
Bioaccumulative potential	Not established.

1,1,1,2-Tetrafluoroethane (811-97-2)	
Bioaccumulative potential	Not established.

Ethane, pentafluoro- (354-33-6)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local, state and federal regulations. Cylinder can be re-used after re-conditioning. Recover, reclaim by distillation or remove to a permitted waste disposal facility. Comply with applicable federal, state/provincial and local regulations. Empty pressure vessels should be returned to the supplier.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1078 Refrigerant gases, n.o.s.,(1,1,1,2-tetrafluoroethane, pentafluoroethane) 2.2

UN-No.(DOT) : 1078

DOT NA no. : UN1078

Proper Shipping Name (DOT) : Refrigerant gases, n.o.s.

Hazard Classes (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102) : T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 306

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

ADR

No additonal information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

CHOICE R-421A	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard Immediate (acute) health hazard

1,1,1,2-Tetrafluoroethane (811-97-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethane, pentafluoro- (354-33-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

1,1,1,2-Tetrafluoroethane (811-97-2)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas

Ethane, pentafluoro- (354-33-6)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

EU-Regulations

1,1,1,2-Tetrafluoroethane (811-97-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethane, pentafluoro- (354-33-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]

No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

No additional information available

15.2.2. National regulations

1,1,1,2-Tetrafluoroethane (811-97-2)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Japanese ISHL (Industrial Safety and Health Law) Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Ethane, pentafluoro- (354-33-6)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Japanese ISHL (Industrial Safety and Health Law) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information : None.

Full text of H-phrases:

Compressed gas	Gases under pressure Compressed gas
Liquefied gas	Gases under pressure Liquefied gas
H280	Contains gas under pressure; may explode if heated

SDS US (GHS HazCom 2012)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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TREMCO®

Version: 1.0
Revision Date: 10/07/2015

SAFETY DATA SHEET

1. Identification

Material name: VULKEM 116 GRAY
Material: 426712 323

Recommended use and restriction on use

Recommended use: Sealant
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor Information
Tremco U.S Sealants
3735 Green Road
Cleveland OH 44122
US

Contact person:	EH&S Department
Telephone:	216-292-5000
Emergency telephone number:	1-800-424-9300 (US); 1-613-996-6666 (Canada)

2. Hazard(s) identification

Hazard Classification

Health Hazards

Respiratory sensitizer	Category 1
Skin sensitizer	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A

Unknown toxicity - Health

Acute toxicity, oral	13.49 %
Acute toxicity, dermal	17.59 %
Acute toxicity, inhalation, vapor	94.66 %
Acute toxicity, inhalation, dust or mist	99.96 %

Environmental Hazards

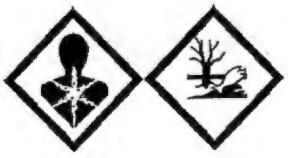
Acute hazards to the aquatic environment	Category 1

Unknown toxicity - Environment

Acute hazards to the aquatic environment	74.73 %
Chronic hazards to the aquatic environment	100 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause genetic defects.
May cause cancer.
Very toxic to aquatic life.

Precautionary Statement:

Prevention: Avoid breathing dust/fume/gas/mist/vapors/spray. [In case of inadequate ventilation] wear respiratory protection. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid release to the environment.

Response: If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. If exposed or concerned: Get medical advice/attention. Specific treatment (see this label). Wash contaminated clothing before reuse. Collect spillage.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/Information on ingredients

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Calcium Carbonate (Limestone)	1317-65-3	10 - 30%
Heavy aromatic naphtha	64742-94-5	3 - 7%
Titanium dioxide	13463-67-7	3 - 7%
Aromatic petroleum distillates	64742-95-6	0.5 - 1.5%
4,4'-Methylene bis(phenylisocyanate)	101-68-8	0.5 - 1.5%
1,2,4-Trimethylbenzene	95-63-6	0.5 - 1.5%
Polymethylene polyphenyl isocyanate	9016-87-9	0.1 - 1%

Aluminum oxide	1344-28-1	0.1 - 1%
1,3,5-Trimethylbenzene	108-67-8	0.1 - 1%
Crystalline Silica (Quartz)/ Silica Sand	14808-60-7	0.1 - 1%
Diphenylmethane diisocyanate	26447-40-5	0.1 - 1%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Ingestion: Call a POISON CENTER/doctor/.../if you feel unwell. Rinse mouth.

Inhalation: Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. Move to fresh air. If breathing is difficult, give oxygen.

Skin Contact: If skin irritation occurs: Get medical advice/attention. Destroy or thoroughly clean contaminated shoes. Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. If skin irritation or an allergic skin reaction develops, get medical attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed

Symptoms: May cause skin and eye irritation.

Indication of immediate medical attention and special treatment needed

Treatment: Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: No data available.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Ventilate closed spaces before entering them. Evacuate area. See Section 8 of the SDS for Personal Protective Equipment. Keep upwind. Keep unauthorized personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up: Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental Precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Use mechanical ventilation in case of handling which causes formation of dust.

Conditions for safe storage, including any incompatibilities: Store locked up.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	type	Exposure Limit Values	Source
Calcium Carbonate (Limestone) - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Calcium Carbonate (Limestone) - Respirable fraction.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Heavy aromatic naphtha - Non-aerosol. - as total hydrocarbon vapor	TWA	200 mg/m3	US. ACGIH Threshold Limit Values (03 2014)
Heavy aromatic naphtha	PEL	100 ppm 400 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Titanium dioxide	TWA	10 mg/m3	US. ACGIH Threshold Limit Values (2011)
Titanium dioxide - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

4,4'-Methylene bis(phenylisocyanate)	TWA	0.005 ppm	US. ACGIH Threshold Limit Values (2011)
	Ceiling	0.02 ppm 0.2 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
1,2,4-Trimethylbenzene	TWA	25 ppm	US. ACGIH Threshold Limit Values (2011)
Polymethylene polyphenyl isocyanate	TWA	0.005 ppm	US. ACGIH Threshold Limit Values (2011)
	Ceiling	0.02 ppm 0.2 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Aluminum oxide - Respirable fraction.	TWA	1 mg/m3	US. ACGIH Threshold Limit Values (2011)
	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Aluminum oxide - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
1,3,5-Trimethylbenzene	TWA	25 ppm	US. ACGIH Threshold Limit Values (2011)
Crystalline Silica (Quartz)/ Silica Sand - Respirable fraction.	TWA	0.025 mg/m3	US. ACGIH Threshold Limit Values (2011)
Crystalline Silica (Quartz)/ Silica Sand - Respirable.	TWA	2.4 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
	TWA	0.1 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
Crystalline Silica (Quartz)/ Silica Sand - Total dust.	TWA	0.3 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)

Chemical name	**type**	**Exposure Limit Values**	**Source**
Diisodecyl phthalate	TWAEV	5 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Calcium Carbonate (Limestone) - Total dust.	STEL	20 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	10 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)

Calcium Carbonate (Limestone) - Respirable fraction.	TWA		3 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Calcium Carbonate (Limestone) - Total dust.	TWA		10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Heavy aromatic naphtha - Non-aerosol. - as total hydrocarbon vapor	TWA		200 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (05 2013)
Heavy aromatic naphtha - Non-aerosol. - as total hydrocarbon vapor	TWAEV		200 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Heavy aromatic naphtha	TWA	400 ppm	1,590 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (11 2011)
Titanium dioxide - Total dust.	TWA		10 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Titanium dioxide - Respirable fraction.	TWA		3 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Titanium dioxide	TWAEV		10 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Titanium dioxide - Total dust.	TWA		10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
4,4'-Methylene bis(phenylisocyanate)	CEILING	0.01 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.005 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
4,4'-Methylene bis(phenylisocyanate)	TWAEV	0.005 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	CEV	0.02 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)

4,4'-Methylene bis(phenylisocyanate)	TWA	0.005 ppm	0.051 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
1,2,4-Trimethylbenzene	TWA	25 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
1,2,4-Trimethylbenzene	TWAEV	25 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
1,2,4-Trimethylbenzene	TWA	25 ppm	123 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Polymethylene polyphenyl isocyanate	TWA	0.005 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	CEILING	0.01 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.005 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	CEILING	0.01 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Polymethylene polyphenyl isocyanate	TWAEV	0.005 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	CEV	0.02 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)

Polymethylene polyphenyl isocyanate	TWA	0.005 ppm	0.051 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
1,3,5-Trimethylbenzene	TWA	25 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
1,3,5-Trimethylbenzene	TWAEV	25 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
1,3,5-Trimethylbenzene	TWA	25 ppm	123 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Crystalline Silica (Quartz)/ Silica Sand - Respirable fraction.	TWA		0.025 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Crystalline Silica (Quartz)/ Silica Sand - Respirable.	TWAEV		0.10 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Crystalline Silica (Quartz)/ Silica Sand - Respirable dust.	TWA		0.1 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)

Appropriate Engineering Controls

Mechanical ventilation or local exhaust ventilation may be required. Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of dust.

Individual protection measures, such as personal protective equipment

General information:

Use personal protective equipment as required.

Eye/face protection:

Wear goggles/face shield.

Skin Protection

Hand Protection:

Use suitable protective gloves if risk of skin contact.

Other:

Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures:

Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace. Avoid contact with skin.

9. Physical and chemical properties

Appearance	
Physical state:	solid
Form:	Paste
Color:	Gray
Odor:	Mild
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
Evaporation rate:	Slower than n-Butyl Acetate
Flammability (solid, gas):	No
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	Vapors are heavier than air and may travel along the floor and in the bottom of containers.
Relative density:	1.1334
Solubility(ies)	
Solubility in water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	Alcohols. Amines. Strong acids. Avoid contact with oxidizing agents (e.g. nitric acid, peroxides and chromates). Strong bases. Water, moisture.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

11. Toxicological information

Information on likely routes of exposure

Ingestion: May be ingested by accident. Ingestion may cause irritation and malaise.

Inhalation: In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.

Skin Contact: Causes mild skin irritation. May cause an allergic skin reaction.

Eye contact: Eye contact is possible and should be avoided.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: ATEmix: 41,691.2 mg/kg

Dermal
Product: ATEmix: 8,468.09 mg/kg

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: No data available.

Serious Eye Damage/Eye Irritation
Product: No data available.

Specified substance(s):

Heavy aromatic naphtha	in vivo (Rabbit, 24 - 72 hrs): Not irritating
Titanium dioxide	in vivo (Rabbit, 24 - 72 hrs): Not irritating
Aromatic petroleum distillates	in vivo (Rabbit, 24 - 72 hrs): Not irritating
4,4'-Methylene bis(phenylisocyanate)	in vivo (Rabbit, 24 - 72 hrs): Not irritating
1,2,4-Trimethylbenzene	in vivo (Rabbit, 30 min): Not irritating
Aluminum oxide	in vivo (Rabbit, 24 hrs): Not irritating
1,3,5-Trimethylbenzene	in vivo (Rabbit, 30 min): Not irritating

Respiratory or Skin Sensitization
Product: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause sensitization by inhalation.

Carcinogenicity
Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Titanium dioxide	Overall evaluation: Possibly carcinogenic to humans.
Crystalline Silica (Quartz)/ Silica Sand	Overall evaluation: Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

Crystalline (Quartz)/ Sand	Silica Silica	Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No data available.

In vivo
Product: No data available.

Reproductive toxicity
Product: No data available.

Specific Target Organ Toxicity - Single Exposure
Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure
Product: No data available.

Aspiration Hazard
Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish	
Product:	No data available.
Specified substance(s):	
Titanium dioxide	LC 50 (Mummichog (Fundulus heteroclitus), 96 h): > 1,000 mg/l Mortality
1,2,4-Trimethylbenzene	LC 50 (Fathead minnow (Pimephales promelas), 96 h): 7.19 - 8.28 mg/l Mortality
1,3,5-Trimethylbenzene	LC 50 (Goldfish (Carassius auratus), 96 h): 9.89 - 15.05 mg/l Mortality
Aquatic Invertebrates	
Product:	No data available.
Specified substance(s):	
Titanium dioxide	EC 50 (Water flea (Daphnia magna), 48 h): > 1,000 mg/l Intoxication
1,2,4-Trimethylbenzene	LC 50 (Scud (Elasmopus pectinicrus), 24 h): 4.89 - 5.62 mg/l Mortality
1,3,5-Trimethylbenzene	EC 50 (Water flea (Daphnia magna), 24 h): 50 mg/l Intoxication

Chronic hazards to the aquatic environment:

Fish	
Product:	No data available.
Specified substance(s):	
Heavy aromatic naphtha	NOAEL (Oncorhynchus mykiss, 28 d): 0.098 mg/l QSAR
Titanium dioxide	LC 0 (Coregonus autumnalis migratorius G., 30 d): 3 mg/l experimental result
Aromatic petroleum distillates	NOAEL (Daphnia magna, 21 d): 2.6 mg/l read across
Aluminum oxide	NOAEL (Pimephales promelas, 28 d): 4.7 mg/l experimental result
Aquatic Invertebrates	
Product:	No data available.
Toxicity to Aquatic Plants	
Product:	No data available.

Persistence and Degradability

Biodegradation	
Product:	No data available.

BOD/COD Ratio
Product: No data available.

Bioaccumulative Potential
Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in Soil: No data available.

Other Adverse Effects: Very toxic to aquatic organisms.

13. Disposal considerations

Disposal instructions: Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging: No data available.

14. Transport information

TDG:

Not Regulated

CFR / DOT:

Not Regulated

IMDG:

Not Regulated

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity	Reportable quantity
4,4'-Methylene bis(phenylisocyanate)	5000 lbs.
Polymethylene polyphenyl isocyanate	5000 lbs.
2,4-Toluene diisocyanate	100 lbs.
Cumene	5000 lbs.
Naphthalene	100 lbs.
Xylene	100 lbs.
Toluene-2,6-Diisocyanate	100 lbs.
Ethylbenzene	1000 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Delayed (Chronic) Health Hazard
Immediate (Acute) Health Hazards

SARA 302 Extremely Hazardous Substance

Chemical Identity	Reportable quantity	Threshold Planning Quantity
2,4-Toluene diisocyanate	100 lbs.	500 lbs.
Toluene-2,6-Diisocyanate	100 lbs.	100 lbs.

SARA 304 Emergency Release Notification

Chemical Identity	Reportable quantity
Diisodecyl phthalate	5000 lbs.
4,4'-Methylene bis(phenylisocyanate)	5000 lbs.
Polymethylene polyphenyl isocyanate	100 lbs.
2,4-Toluene diisocyanate	5000 lbs.
Cumene	100 lbs.
Naphthalene	100 lbs.
Xylene	100 lbs.
Toluene-2,6-Diisocyanate	1000 lbs.
Ethylbenzene	
Diisodecyl phthalate (mixed Is)	

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
2,4-Toluene diisocyanate	500lbs
Toluene-2,6-Diisocyanate	100lbs
Calcium Carbonate (Limestone)	500 lbs
Heavy aromatic naphtha	500 lbs
Titanium dioxide	500 lbs
Aromatic petroleum distillates	500 lbs
4,4'-Methylene bis(phenylisocyanate)	500 lbs
1,2,4-Trimethylbenzene	500 lbs
Polymethylene polyphenyl isocyanate	500 lbs
Aluminum oxide	500 lbs
1,3,5-Trimethylbenzene	500 lbs
Crystalline Silica (Quartz)/ Silica Sand	500 lbs
Diphenylmethane diisocyanate	500 lbs

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

Chemical Identity	Reportable quantity
2,4-Toluene diisocyanate	10000 lbs
Toluene-2,6-Diisocyanate	10000 lbs

US State Regulations

US. California Proposition 65

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
Calcium Carbonate (Limestone)
Heavy aromatic naphtha
Titanium dioxide

US. Massachusetts RTK - Substance List

Chemical Identity
Calcium Carbonate (Limestone)
Heavy aromatic naphtha
Titanium dioxide
Crystalline Silica (Quartz)/ Silica Sand
2,4-Toluene diisocyanate
Toluene-2,6-Diisocyanate

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity
Diisodecyl phthalate
Calcium Carbonate (Limestone)
Heavy aromatic naphtha
Titanium dioxide

US. Rhode Island RTK

Chemical Identity
Diisodecyl phthalate

Other Regulations:

Regulatory VOC (less water and exempt solvent):	70 g/l
VOC Method 310:	1.72 %

Inventory Status:

Australia AICS:	One or more components in this product are not listed on or exempt from the Inventory.
Canada DSL Inventory List:	All components in this product are listed on or exempt from the Inventory.
EINECS, ELINCS or NLP:	One or more components in this product are not listed on or exempt from the Inventory.
Japan (ENCS) List:	One or more components in this product are not listed on or exempt from the Inventory.
China Inv. Existing Chemical Substances:	One or more components in this product are not listed on or exempt from the Inventory.
Korea Existing Chemicals Inv. (KECI):	One or more components in this product are not listed on or exempt from the Inventory.
Canada NDSL Inventory:	One or more components in this product are not listed on or exempt from the Inventory.
Philippines PICCS:	One or more components in this product are not listed on or exempt from the Inventory.
US TSCA Inventory:	All components in this product are listed on or exempt from the Inventory.
New Zealand Inventory of Chemicals:	One or more components in this product are not listed on or exempt from the Inventory.
Japan ISHL Listing:	One or more components in this product are not listed on or exempt from the Inventory.

Japan Pharmacopoeia Listing:	One or more components in this product are not listed on or exempt from the Inventory.

16.Other information, including date of preparation or last revision

Revision Date:	10/07/2015
Version #:	1.0
Further Information:	No data available.
Disclaimer:	For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.

AQ 11pages

carpro trading ltd.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

AQ Iron-X

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Iron-X

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Automotive care products

Uses advised against

none

1.3. Details of the supplier of the safety data sheet

Company name:	carpro trading ltd.
Street:	7, Lfigeneias 4th floor strovolos
Place:	1687 Nicosia (CYPRUS)
Responsible Department:	+972 546 411 911

1.4. Emergency telephone number:

+972 546 411 911

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Substance or mixture corrosive to metals: Met. Corr. 1
Acute toxicity: Acute Tox. 4
Serious eye damage/eye irritation: Eye Dam. 1
Respiratory or skin sensitisation: Skin Sens. 1
Hazard Statements:
May be corrosive to metals.
Harmful if swallowed.
May cause an allergic skin reaction.
Causes serious eye damage.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

ammonium mercaptoacetate
Alcohols, C10-16, ethoxylated, sulfates, sodium salts
piperonal

Signal word: Danger

Pictograms:

Hazard statements

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P501	Dispose of contents/container to in accordance with official regulations.

2.3. Other hazards

The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

aqueous solution

Hazardous components

CAS No	Chemical name	Index No	REACH No	Quantity
	EC No			
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
5421-46-5	ammonium mercaptoacetate			25 - < 30 %
	226-540-9			
	Met. Corr. 1, Acute Tox. 3, Skin Sens. 1; H290 H301 H317			
68585-34-2	Alcohols, C10-16, ethoxylated, sulfates, sodium salts			5 - < 10 %
	500-223-8			
	Skin Irrit. 2, Eye Dam. 1; H315 H318			
120-57-0	piperonal			< 1 %
	204-409-7			
	Skin Sens. 1B; H317			

Full text of H and EUH statements: see section 16.

Labelling for contents according to Regulation (EC) No 648/2004

5 % - 15 % anionic surfactants, perfumes.

Further information

Product does not contain listed SVHC substances > 0,1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Remove contaminated, saturated clothing immediately.

After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately. Apply cortisone spray at early stage.

After contact with skin

Remove contaminated, saturated clothing immediately. After contact with skin, wash immediately with plenty of water and soap. If skin irritation or rash occurs: Get medical advice/attention.

After contact with eyes
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist.

After ingestion
Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect). Do NOT induce vomiting.
Call a physician in any case!

4.2. Most important symptoms and effects, both acute and delayed
No information available.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2). Dry extinguishing powder. alcohol resistant foam. Atomized water.

Unsuitable extinguishing media
High power water jet.

5.2. Special hazards arising from the substance or mixture
In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO2). Sulphur oxides. Nitrogen oxides (NOx). Ammonia (NH3)

5.3. Advice for firefighters
Wear a self-contained breathing apparatus and chemical protective clothing.
In case of fire and/or explosion do not breathe fumes.

Additional information
Co-ordinate fire-fighting measures to the fire surroundings. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Provide adequate ventilation.
Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.
Wear personal protection equipment. (See section 8.)
High slip hazard because of leaking or spilled product.

6.2. Environmental precautions
Discharge into the environment must be avoided. Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.
Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections
Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
Provide adequate ventilation.

Wear suitable protective clothing. (See section 8.)

Advice on protection against fire and explosion

Usual measures for fire prevention.

Further information on handling

Avoid contact with skin, eyes and clothes.
General protection and hygiene measures: See section 8.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place.
Keep/Store only in original container.
Unsuitable materials for Container: metal.

Advice on storage compatibility

Do not store together with: Explosives. Oxidizing solids. Oxidizing liquids. Radioactive substances. Infectious substances.

Further information on storage conditions

Keep the packing dry and well sealed to prevent contamination and absorbtion of humidity.
Recommended storage temperature: 20°C
Protect against: Light. UV-radiation/sunlight. heat. moisture.

7.3. Specific end use(s)

refer to chapter 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
64-17-5	Ethanol	1000	1920		TWA (8 h)	WEL
		-	-		STEL (15 min)	WEL

8.2. Exposure controls



Appropriate engineering controls

If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

Protective and hygiene measures

Always close containers tightly after the removal of product. When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Take off contaminated clothing and wash it before reuse. Street clothing should be stored separately from work clothing. Contaminated work clothing should not be allowed out of the workplace.

Eye/face protection

Tightly sealed safety glasses. DIN EN 166

Hand protection

Pull-over gloves of rubber.
Suitable material:
Butyl rubber.
(penetration time (maximum wearing period): >= 8 h):

Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Skin protection

Suitable protective clothing: Lab apron.
Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.
Respiratory protection necessary at: insufficient ventilation., exceeding exposure limit values
Suitable respiratory protective equipment: Combination filtering device (EN 14387) Type : A/P1-3
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Environmental exposure controls

No special precautionary measures are necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	colourless	
Odour:	characteristic	
		Test method
pH-Value (at 20 °C):	7,5	
Changes in the physical state		
Melting point:	not determined	
Initial boiling point and boiling range:	103 °C	
Flash point:	not determined	
Sustaining combustion:	No data available	
Explosive properties		
none	not determined	
Lower explosion limits:	not determined	
Upper explosion limits:	not determined	
Ignition temperature:	not determined	
Decomposition temperature:		
Oxidizing properties		
none	not determined	
Vapour pressure:	not determined	
Density:	not determined	
Water solubility:	not determined	
Viscosity / dynamic:	not determined	
Viscosity / kinematic:	not determined	
Flow time:	not determined	
Vapour density:		

9.2. Other information

Solid content: not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

May be corrosive to metals.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

No information available.

10.4. Conditions to avoid

Protect against: UV-radiation/sunlight. heat.

10.5. Incompatible materials

Materials to avoid: Reducing agent. Oxidizing agents. Strong acid

10.6. Hazardous decomposition products

In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO_2). Sulphur oxides. Nitrogen oxides (NO_x). Ammonia (NH_3)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicocinetics, metabolism and distribution

No data available.

Acute toxicity

Harmful if swallowed.

ATEmix calculated

ATE (oral) 344,8 mg/kg

CAS No	Chemical name				
	Exposure route	Dose		Species	Source
5421-46-5	ammonium mercaptoacetate				
	oral	LD50 mg/kg	(35-142)	Rat. (OECD 402)	ECHA Dossier
	dermal	LD50	> 1430 mg/kg	Rat. (OECD 402)	ECHA Dossier

Irritation and corrosivity

Causes serious eye damage.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

May cause an allergic skin reaction. (ammonium mercaptoacetate), (piperonal)

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

Ammonium thioglycolate:

In-vitro mutagenicity: Ames test negative.

No evidence for: Carcinogenicity

Developmental toxicity/teratogenicity:

NOAEL = 15 mg/kg; maternal Tox. (OECD Guideline 414)

NOAEL = 75 mg/kg; delvelop. Tox. (OECD Guideline 414)

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available.

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name				
	Aquatic toxicity	Dose	[h] | [d]	Species	Source
5421-46-5	ammonium mercaptoacetate				
	Acute fish toxicity	LC50 >100 mg/l	96 h	Oncorhynchus mykiss (OECD 203)	ECHA Dossier

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
5421-46-5	ammonium mercaptoacetate	-2,99 (pH = 7)

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No data available.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.
Non-contaminated packages may be recycled.
According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.
Control report for waste code/ waste marking according to EAKV:

Waste disposal number of waste from residues/unused products

200129 MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS; separately collected fractions (except 15 01); detergents containing hazardous substances
Classified as hazardous waste.

Waste disposal number of used product

200129 MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS; separately collected fractions (except 15 01); detergents containing hazardous substances
Classified as hazardous waste.

Waste disposal number of contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances
Classified as hazardous waste.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN 1760
14.2. UN proper shipping name:	CORROSIVE LIQUID, N.O.S. (ammonium mercaptoacetate)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Classification code:	C9
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number:	UN 1760
14.2. UN proper shipping name:	CORROSIVE LIQUID, N.O.S. (ammonium mercaptoacetate)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Classification code:	C9
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number:	UN 1760
14.2. UN proper shipping name:	CORROSIVE LIQUID, N.O.S. (ammonium thioglycolate)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Marine pollutant:	NO
Special Provisions:	223, 274
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-B

Air transport (ICAO)

14.1. UN number:	UN 1760
14.2. UN proper shipping name:	CORROSIVE LIQUID, N.O.S. (ammonium thioglycolate)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Special Provisions:	A3 A803
Limited quantity Passenger:	1 L
Passenger LQ:	Y841
Excepted quantity:	E1
IATA-packing instructions - Passenger:	852
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	856
IATA-max. quantity - Cargo:	60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No information available.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

2010/75/EU (VOC):	No information available.
2004/42/EC (VOC):	No information available.
Information according to 2012/18/EU (SEVESO III):	Not subject to 2012/18/EU (SEVESO III)

Additional information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].
REACH 1907/2006 Appendix XVII: 3

National regulatory information

Employment restrictions:	Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Matemity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water contaminating class (D): 3 - highly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Rev. 1.0; 25.06.2013, Initial release
Rev. 1.1; 21.03.2016, Changes in chapter: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
CAS Chemical Abstracts Service
DNEL: Derived No Effect Level
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect level
NTP: National Toxicology Program
N/A: not applicable
OSHA: Concerning the International Transport of Dangerous Goods by Rail)
PNEC: predicted no effect concentration
PBT: Persistent bioaccumulative toxic
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
SARA: Superfund Amendments and Reauthorization Act
SVHC: substance of very high concern
TRGS Technische Regeln für Gefahrstoffe
TSCA: Toxic Substances Control Act
VOC: Volatile Organic Compounds
VwVwS: Verwaltungsvorschrift wassergefährdender Stoffe
WGK: Wassergefährdungsklasse

Relevant H and EUH statements (number and full text)

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of

processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

99 (sheet steel)

Steel Dynamics®
Flat Roll Group
The Techs Division

SAFETY DATA SHEET

1. Identification

Product identifier	**Galvanized Steel-Low C and HSLA Steel (Hot Dipped)**
Other means of identification	
Product code	TECHS 001
Synonyms	Steel
Recommended use	Construction Products, Finished Goods Components, Capital Goods Components.
Recommended restrictions	None known.
Manufacturer / Importer / Supplier / Distributor information	
Manufacturer/Supplier	Steel Dynamics, Inc. - Flat Roll Group - The Techs Division
Address	2400 Second Avenue Pittsburgh, PA 15219
Telephone number	412-464-5000
Fax	412-464-2019
E-mail	info@thetechs.com
Emergency telephone number	412-464-5000

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	
Hazard symbol	None.
Signal word	None.
Hazard statement	None.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash skin with soap and water.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Iron	7439-89-6	80-99.5
Zinc	7440-66-6	0.5-19.0
Manganese	7439-96-5	0.0-1.35
Nickel	7440-02-0	0-0.2

The product is an alloy. At temperatures above the melting point steel products may liberate fumes containing oxides of iron and alloying elements.

Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
Product contains less than 0.004% cadmium and less than 0.01% lead, mercury, hexavalent chromium, antimony, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). Some of these components are specifically regulated by OSHA.

4. First-aid measures

Inhalation	In case of inhalation of fumes from heated product: Move into fresh air and keep at rest. Get medical attention if symptoms persist. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.
Skin contact	Contact with dust: Wash skin with soap and water. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area. In case of burns with hot metal, rinse with plenty of cold water. If burns are severe, consult a physician.
Eye contact	Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Do not rub eye. Get medical attention if irritation develops and persists.
Ingestion	Not likely, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.
Most important symptoms/effects, acute and delayed	Symptoms can include irritation, redness, scratching of the cornea, and tearing. Mechanical rubbing may increase skin irritation. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.
General information	Processing may generate hazardous fumes and dusts.

5. Fire-fighting measures

Suitable extinguishing media	This material will not burn. Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	None.
Specific hazards arising from the chemical	Metallic coating will begin to melt around 427°C (800°F) and the metal will begin to melt around 1510°C (2750°F). This product will proceed to a liquid and will form irritating and toxic gaseous metallic oxides at extremely high temperatures.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire-fighting equipment/instructions	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Cold solid metal: No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product. Hot metal: Avoid contact with hot material. Wear protective clothing as described in Section 8 of this safety data sheet. Avoid generation and spreading of dust and fumes.
Methods and materials for containment and cleaning up	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. Collect dust using a vacuum cleaner equipped with HEPA filter. Steel products may be recycled.
Environmental precautions	Metals in massive forms presents a limited hazard for the environment.

7. Handling and storage

Precautions for safe handling	Avoid generation and spreading of dust. Do not breathe fumes or dust from this material. Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Follow the recommendations in ANSI Z49.1, Safety in welding and cutting (ANSI=American National Standard Institute).
Conditions for safe storage, including any incompatibilities	Store in a dry area.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m3	Fume.
Nickel (CAS 7440-02-0)	PEL	1 mg/m3	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m3	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	STEL	3 mg/m3	Fume.
	TWA	1 mg/m3	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m3	

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Use local exhaust when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure. Inorganic lead and cadmium are specifically regulated material. Consult 29 CFR 1910 for other requirement if action level is attained.

Individual protection measures, such as personal protective equipment

Eye/face protection Use of safety glasses or goggles is required for welding, burning, sawing, brazing, grinding or machining operations.

Skin protection

Hand protection Wear suitable protective gloves to prevent contact, cuts and abrasions.

Other Risk of contact: Wear suitable protective clothing.

Respiratory protection Not normally needed. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards When material is heated, wear gloves to protect against thermal burns. Thermally protective apron and long sleeves are recommended when volume of hot material is significant.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Massive, solid metal.

Physical state Solid.

Form Solid.

Color Metallic gray.

Odor None.

Odor threshold Not applicable.

pH Not applicable.

Melting point/freezing point 2751.8 °F (1511 °C) Base metal, 798.8 - 899.6 °F (426 - 482 °C) Metallic Coating

Initial boiling point and boiling range Not applicable.

Flash point Not applicable.

Evaporation rate Not applicable.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not applicable.

Flammability limit - upper (%) Not applicable.

Explosive limit - lower (%) Not applicable.

Explosive limit - upper (%) Not applicable.

Vapor pressure Not applicable.

Vapor density Not applicable.

Relative density Not available.

Solubility(ies)

Solubility (water) Insoluble in water.

Partition coefficient (n-octanol/water) Not applicable.

Auto-ignition temperature Not applicable.

Decomposition temperature Not available.

Viscosity Not applicable.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Contact with strong acids will release highly flammable hydrogen gas.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids.
Hazardous decomposition products	Metal oxides.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Solid steel: Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.
Inhalation	No inhalation hazard under normal conditions. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills.
Skin contact	Under normal conditions of intended use, this material does not pose a risk to health. Dust may irritate skin. Contact with hot material can cause thermal burns which may result in permanent damage.
Eye contact	Under normal conditions of intended use, this material does not pose a risk to health. Contact with hot material can cause thermal burns which may result in permanent damage. Grinding and sanding this product may generate dust. Dust may irritate the eyes.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms include itching, burning, redness, and tearing of eyes. Mechanical irritation of skin. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

Information on toxicological effects

Acute toxicity Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

Components	Species	Test Results
Iron (CAS 7439-89-6)		
Acute		
Oral		
LD50	Rat	30 g/kg
Manganese (CAS 7439-96-5)		
Acute		
Oral		
LD50	Rat	9000 mg/kg

Skin corrosion/irritation	Not classified.
Serious eye damage/eye irritation	Not classified.
Respiratory or skin sensitization	
Respiratory sensitization	No data available.
Skin sensitization	Contains nickel: May cause an allergic skin reaction.
Germ cell mutagenicity	No data available.
Carcinogenicity	For solid product: The product is not classified as carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Nickel (CAS 7440-02-0) Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	No data available.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not applicable for solids.
Chronic effects	Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases. Exposure to manganese fume/dust can affect the central nervous system (apathy, drowsiness, weakness and other chronic symptoms such as postural tremors).

Further information The ingredients of the alloy are bound within the product and release is not expected under normal conditions. In its manufactured and shipped state, this product is considered non-hazardous. Processing may generate hazardous fumes and dusts.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Components		Species	Test Results
Iron (CAS 7439-89-6)			
Aquatic			
Fish	LC50	Channel catfish (Ictalurus punctatus)	> 500 mg/l, 96 hours
Nickel (CAS 7440-02-0)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.916 mg/l, 96 hours
Zinc (CAS 7440-66-6)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.24 mg/l, 96 hours

Persistence and degradability No data available.

Bioaccumulative potential No data available on bioaccumulation.

Mobility in soil Not available.

Mobility in general Not relevant, due to the form of the product.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Dispose waste and residues in accordance with applicable federal, state, and local regulations.

Hazardous waste code Not regulated.

Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Recover and recycle, if practical.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Manganese (CAS 7439-96-5)	LISTED
Nickel (CAS 7440-02-0)	LISTED
Zinc (CAS 7440-66-6)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Zinc	7440-66-6	0.5-19.0
Manganese	7439-96-5	0.0-1.35
Nickel	7440-02-0	0-0.2

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Zinc (CAS 7440-66-6)

US. New Jersey Worker and Community Right-to-Know Act

Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Zinc (CAS 7440-66-6)

US. Pennsylvania Worker and Community Right-to-Know Law

Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Zinc (CAS 7440-66-6)

US. Rhode Island RTK

Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Zinc (CAS 7440-66-6)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Nickel (CAS 7440-02-0)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Revision date June 11, 2015

Version # 02

NFPA Ratings

Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. SDS's for specific coatings are available upon request.

SDS# Pro-Blue
Date: October 2015

Total Pages: 6

Pro-Blue™

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Pro-Blue
Catalog Number: Pro-Blue
Manufactured by: DiversiTech Corporation
6650 Sugarloaf Parkway
Duluth, GA, 30097
Information Phone No.: 1+678.542.3600
EMERGENCY Phone No.: 1 800.255.3924 Chem-Tel (Chemical Emergencies)
PREPARED BY: V. Leone

SECTION 2. HAZARDOUS INGREDIENTS INFORMATION

GHS Classification:

Skin Irritation Category 1B
Eye Irritation Category 1

Label Elements:

Signal Word Danger!

Hazard Statement(s)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary statement(s)

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe mist or spray.
P264	Wash thoroughly after handling.
P280	Wear rubber, neoprene or nitrile gloves and protective clothing, and safety goggle or a face shield to protect eyes and face.

Response

P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse SKIN with water or shower.
P363	Wash contaminated clothing before reuse.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P405	Store locked up
P501	Dispose of contents and container to appropriate facility in accordance with Federal, State, and local regulations.

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SECTION 3. HAZARDOUS INGREDIENTS INFORMATION

INGREDIENT	CAS No.	EINECS No.	% or Range	GHS Classification
Water	7732-18-5	231-791-2	60-80	Not classified
Sodium hydroxide	1310-73-2	215-185-5	15-20	H314: Skin Corrosion Category 1A H318: Eye Damage Category 1 H402: Aquatic Acute Category 3
Sodium Carbonate	497-19-8	207-838-8	1-3	H315: Skin Irritant Category 2 H319: Eye Irritant Category 2A
Sodium Gluconate	527-07-1	208-407-7	1-3	H515: Skin Irritant Category 3 H319: Eye Irritant Category 2B

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.
Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Note to Physician: Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, consider the use of therapeutic doses of steroids. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

4.2. Signs and Symptoms of Exposure:

Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.

SECTION 5. FIREFIGHTING MEASURES

Suitable and Unsuitable Extinguishing Media:
This product is not flammable. However, sodium hydroxide solutions can react with non-ferrous metals to generate flammable hydrogen gas. Use dry chemical, carbon dioxide, or foam. Use water to cool fire-exposed containers and to protect personnel. Do not direct a solid stream of water or foam into hot, burning pools. This may result in frothing and increase fire intensity.

Special Equipment and Precautions for Fire–Fighters:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment and clothing during clean-up.

Methods and Material for Containment and Clean-Up: Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, then neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. do not use aluminum tools to collect absorbed material or aluminum containers to store collected waste. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities (700 gallons) of this product. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. Remove contaminated clothing immediately.

Pro-Blue™

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Keep in a tightly closed container. Protect from physical damage. Keep this and all chemicals out of the reach of children. Avoid contact with eyes and skin. Avoid inhalation of vapors and mists. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities: Store locked up. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.Observe all warnings and precautions listed for the product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits:
Sodium Hydroxide:
OSHA Permissible Exposure Limit (PEL): 15 mg/m3 Ceiling
ACGIH Threshold Limit Value (TLV): 15 mg/m3 Ceiling

Appropriate Engineering Controls:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators: If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear rubber, neoprene, nitrile, Saranex® boots, gloves, lab coat, apron or coveralls, as necessary and appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities or a source of running water in the work area.

Work Hygienic Practices: Use proper industrial hygiene practices to minimize hazardous exposure. Wash hands after handling this material, and before eating, smoking or using the bathroom.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Blue liquid
Odor: Odorless
Odor Threshold: Not established
pH @ 25°C: 14
Melting Point (Pour Point): <25°F
Boiling Point: >200°F
Flash Point: Not established
Evaporation Rate (Water = 1): >1
Flammable Limits: Not established
LEL: N/A
UEL: N/A
Vapor pressure (mm Hg): Same as water
Vapor Density (Air = 1): Same as water
Specific gravity (H2O = 1): 1.190
Solubility in water: Water miscible
Octanol/Water Partition Coefficient: Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not available

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SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under ordinary conditions of use and storage.
Possibility of Hazardous Reactions: Will not occur.
Conditions to Avoid: Extreme heat, incompatibles.
Incompatible Materials: Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitro methane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.
Hazardous Decomposition Products: Sodium oxide. Decomposition by reaction with non-ferrous metals releases flammable and explosive hydrogen gas.

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.
Carcinogenic effects: Not classified
Teratogenicity/Reproductive toxicity: Not classified
Mutagenic effects: Not classified
Numerical Measures of Toxicity:

Sodium hydroxide (irritation data): Skin, rabbit: 500 mg/24H severe;
Eye rabbit: 50 ug/24H severe.

Sodium Carbonate (acute toxicity): Oral, LD50, rat: >2,000 mg/kg
Inhalation, rat: 2.3 mg/l 2h
(chronic toxicity): Inhalation, rat, target organ: lungs, 0.07 mg/l, observed effect. No effect on reproduction.
Irritation: Rabbit, non-irritant (skin).
Rabbit, irritant (eyes).

Sodium Gluconate: ivn-rbt LDLo: 7630 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Sodium hydroxide: Fish: Carp: 180ppm (LC100); 24H;
Aquatic: This product is toxic to Aquatic Life. Toxicity is primarily associated with pH.
Persistence and Degradability: Biodegradable
Bioaccumulative Potential: No data available
Mobility in Soil: No data available. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Other Adverse Effects: None known
Other: For more information, see *"HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."*

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of spill clean- up and other wastes in accordance with Federal, State, and local regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Treat empty containers as hazardous. Dispose of container and unused contents in accordance with federal, state and local requirements. **RCRA Hazard Class (if discarded):** CORROSIVE D002.

Pro-Blue™

SECTION 14. TRANSPORTATION INFORMATION

US DOT: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
DOT Proper Shipping Name: Corrosive liquid, basic inorganic, N.O.S. (contains sodium hydroxide)
DOT Hazard Class: 8
UN Number: UN3266
Packing Group: II
IMO: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
Limited Quantity: No
Marine Pollutant: No
ADR/RID Class: 8
ADR/RID Packing Group: II
IMDG Hazard Class: 8
IMDG Packing Group: II
ADNR Class: 8
ADNR Item: UN3266
IATA Hazard Class: 8
IATA Packing Group: II
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15. REGULATORY INFORMATION

US EPA
Comprehensive Environmental Response Compensation and Liability
Act of 1980 (CERCLA) requires notification of the National Response Center of release quantities of Hazardous Substances is not required for this material.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on threshold planning quantities and release reporting based on reportable quantities in 40 CFR 355 (used for SARA 302, 304, 311, and 312) is not required for quantities below 250 pounds.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This material is not subject to reporting requirements.
Toxic Substances Control Act (TSCA) Status: The ingredients of this product is not listed on the TSCA inventory.

State Right to Know
California Proposition 65: This product does not contain any materials on the Proposition 65 List of Chemicals Known to Cause Cancer or Reproductive Toxicity.
Massachusetts: Hazardous substances and extraordinarily hazardous substances must be identified.
Pennsylvania: Hazardous substances must be identified.
California SCAQMD Rule 443.1 (VOC's): None

Chemical Inventory Status
Canada

Ingredient	TSCA	EC	Japan	Australia	Korea	DSL	NDSL	Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

Federal, State & International Regulations

	SARA 302		SARA 313		TSCA	CERCLA 261.33 8(d)
Ingredient	RQ	TPQ	Chemical	RCRA	List -	
Sodium Hydroxide (1310-73-2)	No	No	No	1000	No	No

Chemical Weapons Convention: No
TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: Yes (Mixture / Liquid)
Australian Hazchem Code: 2R
Poison Schedule: S6

WHMIS:
This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.

Pro-Blue™

SECTION 16. OTHER INFORMATION:

Revision Summary: All Sections: New GHS Format

SDS DATE REVISED: 10/09/2015

RCRA Hazard Class (If discarded): CORROSIVE D002.

HMIS III Ratings
HMIS III®

Health	3
Physical Hazard	1
Personal Protection	I

This information is, to the best of our knowledge and belief, accurate and reliable as of the date completed. However no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the completeness and suitability of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.

SDS# Pro-Blue
Date: October 2015

Total Pages: 6

Pro-Blue™

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Pro-Blue
Catalog Number: Pro-Blue
Manufactured by: DiversiTech Corporation
6650 Sugarloaf Parkway
Duluth, GA, 30097
Information Phone No.: 1+678.542.3600
EMERGENCY Phone No.: 1 800.255.3924 Chem-Tel (Chemical Emergencies)
PREPARED BY: V. Leone

SECTION 2. HAZARDOUS INGREDIENTS INFORMATION

GHS Classification:

Skin Irritation Category 1B
Eye Irritation Category 1

Label Elements:

Signal Word Danger!

Hazard Statement(s)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary statement(s)

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe mist or spray.
P264	Wash thoroughly after handling.
P280	Wear rubber, neoprene or nitrile gloves and protective clothing, and safety goggle or a face shield to protect eyes and face.

Response

P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse SKIN with water or shower.
P363	Wash contaminated clothing before reuse.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P405	Store locked up
P501	Dispose of contents and container to appropriate facility in accordance with Federal, State, and local regulations.

Pro-Blue™

SECTION 3. HAZARDOUS INGREDIENTS INFORMATION

INGREDIENT	CAS No.	EINECS No.	% or Range	GHS Classification
Water	7732-18-5	231-791-2	60-80	Not classified
Sodium hydroxide	1310-73-2	215-185-5	15-20	H314: Skin Corrosion Category 1A H318: Eye Damage Category 1 H402: Aquatic Acute Category 3
Sodium Carbonate	497-19-8	207-838-8	1-3	H315: Skin Irritant Category 2 H319: Eye Irritant Category 2A
Sodium Gluconate	527-07-1	208-407-7	1-3	H515: Skin Irritant Category 3 H319: Eye Irritant Category 2B

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.
Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Note to Physician: Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, consider the use of therapeutic doses of steroids. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

4.2. Signs and Symptoms of Exposure:
Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.

SECTION 5. FIREFIGHTING MEASURES

Suitable and Unsuitable Extinguishing Media:
This product is not flammable. However, sodium hydroxide solutions can react with non-ferrous metals to generate flammable hydrogen gas. Use dry chemical, carbon dioxide, or foam. Use water to cool fire-exposed containers and to protect personnel. Do not direct a solid stream of water or foam into hot, burning pools. This may result in frothing and increase fire intensity.

Special Equipment and Precautions for Fire–Fighters:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment and clothing during clean-up.

Methods and Material for Containment and Clean-Up: Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, then neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. do not use aluminum tools to collect absorbed material or aluminum containers to store collected waste. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities (700 gallons) of this product. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. Remove contaminated clothing immediately.

Pro-Blue™

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Keep in a tightly closed container. Protect from physical damage. Keep this and all chemicals out of the reach of children. Avoid contact with eyes and skin. Avoid inhalation of vapors and mists. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities: Store locked up. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.Observe all warnings and precautions listed for the product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits:
Sodium Hydroxide:
OSHA Permissible Exposure Limit (PEL): 15 mg/m3 Ceiling
ACGIH Threshold Limit Value (TLV): 15 mg/m3 Ceiling

Appropriate Engineering Controls:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators: If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear rubber, neoprene, nitrile, Saranex® boots, gloves, lab coat, apron or coveralls, as necessary and appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities or a source of running water in the work area.

Work Hygienic Practices: Use proper industrial hygiene practices to minimize hazardous exposure. Wash hands after handling this material, and before eating, smoking or using the bathroom.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Blue liquid
Odor: Odorless
Odor Threshold: Not established
pH @ 25°C: 14
Melting Point (Pour Point): <25°F
Boiling Point: >200°F
Flash Point: Not established
Evaporation Rate (Water = 1): >1
Flammable Limits: Not established
LEL: N/A
UEL: N/A
Vapor pressure (mm Hg): Same as water
Vapor Density (Air = 1): Same as water
Specific gravity (H2O = 1): 1.190
Solubility in water: Water miscible
Octanol/Water Partition Coefficient: Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not available

Pro-Blue™

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under ordinary conditions of use and storage.
Possibility of Hazardous Reactions: Will not occur.
Conditions to Avoid: Extreme heat, incompatibles.
Incompatible Materials: Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitro methane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.
Hazardous Decomposition Products: Sodium oxide. Decomposition by reaction with non-ferrous metals releases flammable and explosive hydrogen gas.

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.
Carcinogenic effects: Not classified
Teratogenicity/Reproductive toxicity: Not classified
Mutagenic effects: Not classified
Numerical Measures of Toxicity:

Sodium hydroxide (irritation data): Skin, rabbit: 500 mg/24H severe;
Eye rabbit: 50 ug/24H severe.

Sodium Carbonate (acute toxicity): Oral, LD50, rat: >2,000 mg/kg
Inhalation, rat: 2.3 mg/l 2h
(chronic toxicity): Inhalation, rat, target organ: lungs, 0.07 mg/l, observed effect. No effect on reproduction.
Irritation: Rabbit, non-irritant (skin).
Rabbit, irritant (eyes).

Sodium Gluconate: ivn-rbt LDLo: 7630 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Sodium hydroxide: Fish: Carp: 180ppm (LC100); 24H;
Aquatic: This product is toxic to Aquatic Life. Toxicity is primarily associated with pH.
Persistence and Degradability: Biodegradable
Bioaccumulative Potential: No data available
Mobility in Soil: No data available. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Other Adverse Effects: None known
Other: For more information, see *"HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."*

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of spill clean- up and other wastes in accordance with Federal, State, and local regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Treat empty containers as hazardous. Dispose of container and unused contents in accordance with federal, state and local requirements. **RCRA Hazard Class (if discarded):** CORROSIVE D002.

Pro-Blue™

SECTION 14. TRANSPORTATION INFORMATION

US DOT: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
DOT Proper Shipping Name: Corrosive liquid, basic inorganic, N.O.S. (contains sodium hydroxide)
DOT Hazard Class: 8
UN Number: UN3266
Packing Group: II
IMO: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
Limited Quantity: No
Marine Pollutant: No
ADR/RID Class: 8
ADR/RID Packing Group: II
IMDG Hazard Class: 8
IMDG Packing Group: II
ADNR Class: 8
ADNR Item: UN3266
IATA Hazard Class: 8
IATA Packing Group: II
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15. REGULATORY INFORMATION

US EPA
Comprehensive Environmental Response Compensation and Liability
Act of 1980 (CERCLA) requires notification of the National Response Center of release quantities of Hazardous Substances is not required for this material.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on threshold planning quantities and release reporting based on reportable quantities in 40 CFR 355 (used for SARA 302, 304, 311, and 312) is not required for quantities below 250 pounds.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This material is not subject to reporting requirements.
Toxic Substances Control Act (TSCA) Status: The ingredients of this product is not listed on the TSCA inventory.

State Right to Know
California Proposition 65: This product does not contain any materials on the Proposition 65 List of Chemicals Known to Cause Cancer or Reproductive Toxicity.
Massachusetts: Hazardous substances and extraordinarily hazardous substances must be identified.
Pennsylvania: Hazardous substances must be identified.
California SCAQMD Rule 443.1 (VOC's): None

Chemical Inventory Status
Canada

Ingredient	TSCA	EC	Japan	Australia	Korea	DSL	NDSL	Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

Federal, State & International Regulations

	SARA 302		SARA 313		TSCA	CERCLA 261.33 8(d)
Ingredient	RQ	TPQ	Chemical	RCRA	List -	
Sodium Hydroxide (1310-73-2)	No	No	No	1000	No	No

Chemical Weapons Convention: No
TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: Yes (Mixture / Liquid)
Australian Hazchem Code: 2R
Poison Schedule: S6

WHMIS:
This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.

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SECTION 16. OTHER INFORMATION:

Revision Summary: All Sections: New GHS Format

SDS DATE REVISED: 10/09/2015

RCRA Hazard Class (if discarded): CORROSIVE D002.

HMIS III Ratings
HMIS III®

Health	3
Physical Hazard	1
Personal Protection	I

This information is, to the best of our knowledge and belief, accurate and reliable as of the date completed. However no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the completeness and suitability of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.

SDS# Pro-Green
Date: October 2015

Total Pages: 5

Pro-Green™

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Pro-Green Indoor Coil Cleaner
Catalog Number: Pro-Green
Manufactured by: DiversiTech Corporation
6650 Sugarloaf Parkway
Duluth, GA, 30097
Information Phone No.: 1+678.542.3600
EMERGENCY Phone No.: 1 800.255.3924 Chem-Tel (Chemical Emergencies)
PREPARED BY: V. Leone

SECTION 2. HAZARDOUS IDENTIFICATION

GHS Classification:

Skin Irritation Category 2
Eye Irritation Category 2A

Label Elements:

Signal Word Warning!

Hazard Statement(s)

H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statement(s)

P102	Keep out of reach of children.
P103	Read label before use.
P264	Wash thoroughly after handling.
P280	Wear rubber, nitrile or neoprene protective gloves and clothing, and safety goggles or face shield to protect eyes and face.
P302+352	IF ON SKIN: Wash with plenty of soap and water.
P332 + 313	If skin irritation occurs: Get medical attention.
P362 + 364	Take off contaminated clothing and wash it before reuse.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313	If eye irritation persists: Get medical advice/attention.

SECTION 3. HAZARDOUS INGREDIENTS INFORMATION

INGREDIENT	CAS No.	EINECS No.	% or Range	GHS Classification	
Water	7732-18-5	231-791-2	60-80	Not classified	
Sodium silicate	1344-09-8	215-687-4	< 1	H314: Causes severe skin burns and eye damage	Category 1B
				H335: May cause respiratory irrit.	Category 3
2-Butoxyethanol	111-76-2	203-905-0	1-5	H302: Harmful if swallowed	Category 4

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SECTION 3. HAZARDOUS INGREDIENTS INFORMATION(cont.)

INGREDIENT	CAS No.	EINECS No.	% Or Range	GHS Classification	
				H312: Harmful in contact with skin	Category 4
				H315: Causes skin irri.	Category 2
				H319: Causes serious eye irritation	Category 2A
				H332: Harmful if inhaled	Category 4
Tetrasodium EDTA	64-02-8	200-573-9	< 1	H302: Harmful if swallowed	Category 4
				H318: Causes serious eye damage	Category 1

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Wash with soap and water. Rinse with copious amounts of fresh, running water. If irritation persists, get medical attention.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

4.2. Signs and Symptoms of Exposure:

Inhalation: Effects from inhalation of mists and vapors vary from mild to moderate irritation of the upper respiratory tract, depending on severity of exposure. Abusive or excessive inhalation of vapors may cause irritation to the upper respiratory tract, dizziness, nausea and other central nervous system effects.

Ingestion: Swallowing can cause gastro-intestinal irritation, nausea, vomiting, diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis. Minimal toxicity.

Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.

Eye Contact: May cause pain and moderate irritation of eyes.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the product.

SECTION 5. FIREFIGHTING MEASURES

Suitable and Unsuitable Extinguishing Media:

This product is not flammable. Use dry chemical, carbon dioxide, foam or other media suitable for the primary source of the fire.

Special Equipment and Precautions for Fire–Fighters:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. Cool fire-exposed containers with a water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment and clothing during cleen-up.

Methods and Material for Containment and Clean-Up: Contain and absorb liquid with clay, vermiculite or other inert substance, sweep up and package in a container suitable for disposal. Wash away residues with water. Dispose of absorbed material in accordance with Federal, local and state regulations.

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SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Keep in a tightly closed container. Protect from physical damage. Keep this and all chemicals out of the reach of children. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatible materials. Observe all warnings and precautions listed for the product. Observe all warnings and precautions listed for the product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits:
2-butoxyethanol:
OSHA Permissible Exposure Limit (PEL): 50ppm (skin)
ACGIH Threshold Limit Value (TLV): 20ppm

Appropriate Engineering Controls:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): Not required for normal use in accordance with label directions.

Skin Protection: Use rubber, neoprene or nitrile gloves to minimize skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. A source of running water or other eyewash provisions should be nearby.

Work Hygienic Practices: Use proper industrial hygiene practices to minimize hazardous exposure. Wash hands after handling this material, and before eating, smoking or using the bathroom.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear green liquid
Odor:	Mild glycol ether
Odor Threshold:	Not established
pH @ 25°C:	>11
Melting Point (Pour Point) :	Not established
Boiling Point :	> 220°F
Flash Point:	None
Evaporation Rate (Water = 1):	>1
Flammable Limits:	Not applicable
LEL:	N/A
UEL:	N/A
Vapor pressure (mm Hg):	Same as water
Vapor Density (Air = 1):	Same as water
Specific gravity (H2O = 1):	1.020
Solubility in water:	Water miscible
Octanol/Water Partition Coefficient:	Not available
Autoignition Temperature:	Not available
Decomposition Temperature:	Not available

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions: Will not occur.

Conditions to Avoid: Incompatibles.

Incompatible Materials: Avoid contact with strong oxidizing agents, strong alkalis and strong acids

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen sulfide, Sulfur Dioxide.

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SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Inhalation: Effects from inhalation of mists and vapors vary from mild to moderate irritation of the upper respiratory tract, depending on severity of exposure. Abusive or excessive inhalation of vapors may cause irritation to the upper respiratory tract, dizziness, nausea and other central nervous system effects.
Ingestion: Swallowing can cause gastro-intestinal irritation, nausea, vomiting, diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis. Minimal toxicity.
Skin Contact: Frequent or prolonged contact may cause irritation.
Eye Contact: May cause pain and moderate irritation of eyes.
Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the product.
Carcinogenic effects: Not classified
Teratogenicity/Reproductive toxicity: Not classified
Mutagenic effects: Not classified
Numerical Measures of Toxicity: Not available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Sodium hydroxide: Fish: Carp: 180ppm (LC100); 24H;

Aquatic: Not available

Persistence and Degradability: Biodegradable.

Bioaccumulative Potential: No bioaccumulation potential based on available literature.

Mobility in Soil: Final destination of reacted products is water. Readily adsorbed into soil.

Other Adverse Effects: None known

Other: For more information, see *"HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."*

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of spill-clean up and other wastes in accordance with Federal, State, and local regulations. Whatever cannot be saved by recovery should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. Empty containers of this material, properly rinsed with water, pose no disposal hazard and may be recycled. State and local disposal regulations may differ from federal disposal regulations.

SECTION 14. TRANSPORTATION INFORMATION

US DOT: Not classified as a shipping hazard
International (Water, I.M.O.) Not classified a shipping hazard
DOT Proper Shipping Name: Compound Cleaning Liquid, N.O.I.
DOT Hazard Class: None
UN Number: None
Packing Group: None
Limited Quantity: No
Marine Pollutant: No
ADR/RID Class: None
ADR/RID Packing Group: None
IMDG Hazard Class: None
IMDG Packing Group: None
ADNR Class: None
ADNR Item: None
IATA Hazard Class: None
IATA Packing Group: None
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

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SECTION 15. REGULATORY INFORMATION

Federal, State & International Regulations
U.S. REGULATIONS:
U.S. EPA:

Comprehensive Environmental Response Compensation and Liability

Act of 1980 (CERCLA) requires notification of the National Response Center of release quantities of Hazardous Substances is not required for this material.

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on threshold planning quantities and release reporting based on reportable quantities in 40 CFR 355 (used for SARA 302, 304, 311, and 312) is not required for quantities below 250 pounds.

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This material is not subject to reporting requirements.

Toxic Substances Control Act (TSCA) Status: The ingredients of this product are on the TSCA inventory.

State Right to Know
California Proposition 65: Not subject to reporting requirements under Prop 65
Massachusetts: Hazardous substances and extraordinarily hazardous substances must be identified. Pennsylvania: Hazardous substances must be identified.
California SCAQMD Rule 443.1 (VOC's): <2%

Chemical Weapons Convention: No
TSCA 12(b): No **CDTA:** No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: Yes (Mixture / Liquid)
Australian Hazchem Code: 2R
Poison Schedule: S6

WHMIS:
This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.
CANADA INVENTORY (DSL/NDSL): All components of this product are listed on the DSL.

SECTION 16. OTHER INFORMATION:

Revision Summary: All Sections: New GHS Format

SDS Date revised: 10/09/2015

HMIS III Ratings
HMIS III®

Health	1
Physical Hazard	0
Personal Protection	B

This information is, to the best of our knowledge and belief, accurate and reliable as of the date completed. However no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the completeness and suitability of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.

CK

SAFETY DATA SHEET

DIVERSITECH

6 pages

SDS# Pro-Red+
Date: October 2015

Total Pages: 6

CK Pro Red

Pro-Red+™

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Pro-Red+ Coil Cleaner
Catalog Number: Pro-Red+
Manufactured by: DiversiTech Corporation
6650 Sugarloaf Parkway
Duluth, GA, 30097
Information Phone No.: 1+678.542.3600
EMERGENCY Phone No.: 1 800.255.3924 Chem-Tel (Chemical Emergencies)
PREPARED BY: V. Leone

SECTION 2. HAZARDOUS INGREDIENTS INFORMATION

GHS Classification:

Skin Irritation Category 1B
Eye Irritation Category 1

Label Elements:

Signal Word Danger!

Hazard Statement(s)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary statement(s)

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe mist or spray.
P264	Wash thoroughly after handling.
P280	Wear rubber, neoprene or nitrile gloves and protective clothing, and safety goggle or a face shield to protect eyes and face.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse SKIN with water or shower.
P363	Wash contaminated clothing before reuse.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P405	Store locked up.
P501	Dispose of contents and container to appropriate facility in accordance with Federal, State, and local regulations.

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SECTION 3. HAZARDOUS INGREDIENTS INFORMATION

INGREDIENT	CAS No.	EINECS No.	% or Range	GHS Classification	
Water	7732-18-5	231-791-2	85-95	Not classified	
Sodium hydroxide	1310-73-2	215-185-5	15-20	H314: Skin Corrosion H318: Eye Damage H402: Aquatic Acute	Category 1A Category 1 Category 3
Sodium Carbonate	497-19-8	207-838-8	1-3	H315: Skin Irritant H319: Eye Irritant	Category 2 Category 2A
Sodium Gluconate	527-07-1	208-407-7	1-3	H515: Skin Irritant H319: Eye Irritant	Category 3 Category 2B

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.
Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Note to Physician: Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, consider the use of therapeutic doses of steroids. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

4.2. Signs and Symptoms of Exposure:
Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.

SECTION 5. FIREFIGHTING MEASURES

Suitable and Unsuitable Extinguishing Media:
This product is not flammable. However, sodium hydroxide solutions can react with non-ferrous metals to generate flammable hydrogen gas. Use dry chemical, carbon dioxide, or foam. Use water to cool fire-exposed containers and to protect personnel. Do not direct a solid stream of water or foam into hot, burning pools. This may result in frothing and increase fire intensity.

Special Equipment and Precautions for Fire–Fighters:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment and clothing during clean-up.

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SECTION 6. ACCIDENTAL RELEASE MEASURES (cont.)

Methods and Material for Containment and Clean-Up: Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, then neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. do not use aluminum tools to collect absorbed material or aluminum containers to store collected waste. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities (700 gallons) of this product. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. Remove contaminated clothing immediately.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Keep in a tightly closed container. Protect from physical damage. Keep this and all chemicals out of the reach of children. Avoid contact with eyes and skin. Avoid inhalation of vapors and mists. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities: Store locked up. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.Observe all warnings and precautions listed for the product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits:
Sodium Hydroxide:
OSHA Permissible Exposure Limit (PEL): 15 mg/m3 Ceiling
ACGIH Threshold Limit Value (TLV): 15 mg/m3 Ceiling

Appropriate Engineering Controls:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators: If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear rubber, neoprene, nitrile, Saranex® boots, gloves, lab coat, apron or coveralls, as necessary and appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities or a source of running water in the work area.
Work Hygienic Practices: Use proper industrial hygiene practices to minimize hazardous exposure. Wash hands after handling this material, and before eating, smoking or using the bathroom.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dark Red liquid
Odor: Odorless
Odor Threshold: Not established
pH @ 25°C: 14
Melting Point (Pour Point): <25°F
Boiling Point: >200°F
Flash Point: Not established
Evaporation Rate (Water = 1): >1
Flammable Limits: Not established
LEL: N/A
UEL: N/A
Vapor pressure (mm Hg): Same as water
Vapor Density (Air = 1): Same as water
Specific gravity (H2O = 1): 1.190
Solubility in water: Water miscible
Octanol/Water Partition Coefficient: Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not available

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SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under ordinary conditions of use and storage.
Possibility of Hazardous Reactions: Will not occur.
Conditions to Avoid: Extreme heat, incompatibles.
Incompatible Materials: Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitro methane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.
Hazardous Decomposition Products: Sodium oxide. Decomposition by reaction with non-ferrous metals releases flammable and explosive hydrogen gas.

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.

Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.
Carcinogenic effects: Not classified
Teratogenicity/Reproductive toxicity: Not classified
Mutagenic effects: Not classified
Numerical Measures of Toxicity:

Sodium hydroxide (irritation data):	Skin, rabbit: 500 mg/24H severe; Eye rabbit: 50 ug/24H severe.
Sodium Carbonate (acute toxicity):	Oral, LD50, rat: >2,000 mg/kg Inhalation, rat: 2.3 mg/l 2h
(chronic toxicity):	Inhalation, rat, target organ: lungs, 0.07 mg/l, observed effect. No effect on reproduction. Irritation: Rabbit, non-irritant (skin). Rabbit, irritant (eyes).
Sodium Gluconate:	ivn-rbt LDLo: 7630 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Sodium hydroxide: Fish: Carp: 180ppm (LC100); 24H;
Aquatic: This product is toxic to Aquatic Life. Toxicity is primarily associated with pH.
Persistence and Degradability: Biodegradable
Bioaccumulative Potential: No data available
Mobility in Soil: No data available. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Other Adverse Effects: None known
Other: For more information, see *"HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."*

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of spill clean- up and other wastes in accordance with Federal, State, and local regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Treat empty containers as hazardous. Dispose of container and unused contents in accordance with federal, state and local requirements. **RCRA Hazard Class (if discarded):** CORROSIVE D002.

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SECTION 14. TRANSPORTATION INFORMATION

US DOT: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
DOT Proper Shipping Name: Corrosive liquid, basic inorganic, N.O.S. (contains sodium hydroxide)
DOT Hazard Class: 8
UN Number: UN3266
Packing Group: II
IMO: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
Limited Quantity: No
Marine Pollutant: No
ADR/RID Class: 8
ADR/RID Packing Group: II
IMDG Hazard Class: 8
IMDG Packing Group: II
ADNR Class: 8
ADNR Item: UN3266
IATA Hazard Class: 8
IATA Packing Group: II
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15. REGULATORY INFORMATION

US EPA
Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release quantities of Hazardous Substances is not required for this material.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on threshold planning quantities and release reporting based on reportable quantities in 40 CFR 355 (used for SARA 302, 304, 311, and 312) is not required for quantities below 250 pounds.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This material is not subject to reporting requirements.
Toxic Substances Control Act (TSCA) Status: The ingredients of this product is not listed on the TSCA inventory.

State Right to Know
California Proposition 65: This product does not contain any materials on the Proposition 65 List of Chemicals Known to Cause Cancer or Reproductive Toxicity.
Massachusetts: Hazardous substances and extraordinarily hazardous substances must be identified.
Pennsylvania: Hazardous substances must be identified.
California SCAQMD Rule 443.1 (VOC's): None

Chemical Inventory Status
Canada

Ingredient	TSCA	EC	Japan	Australia	Korea	DSL	NDSL	Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

Federal, State & International Regulations

Ingredient	SARA 302 RQ	SARA 302 TPQ	SARA 313 Chemical	TSCA RCRA	CERCLA 261.33 8(d) List -
Sodium Hydroxide (1310-73-2)	No	No	No	1000	No No

Chemical Weapons Convention: No
TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: Yes (Mixture / Liquid)
Australian Hazchem Code: 2R
Poison Schedule: S6

WHMIS:
This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.

Pro-Red+™

SECTION 16. OTHER INFORMATION:

Revision Summary: All Sections: New GHS Format

SDS DATE REVISED: 10/09/2015

HMIS III Ratings
HMIS III®

Health	3
Flammability	0
Physical Hazard	1
Personal Protection	I

This information is, to the best of our knowledge and belief, accurate and reliable as of the date completed. However no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the completeness and suitability of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.

CK

SAFETY DATA SHEET

DIVERSITECH

6 PAGES

SDS# Pro-Yellow
Date: October 2015

Total Pages: 6

CK Pro Yellow

Pro-Yellow™

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Pro-Yellow
Catalog Number: Pro-Yellow
Manufactured by: DiversiTech Corporation
6650 Sugarloaf Parkway
Duluth, GA, 30097
Information Phone No.: 1+678.542.3600
EMERGENCY Phone No.: 1 800.255.3924 Chem-Tel (Chemical Emergencies)
PREPARED BY: V. Leone

SECTION 2. HAZARDOUS INGREDIENTS INFORMATION

GHS Classification:

Skin Irritation Category 1B
Eye Irritation Category 1

Label Elements:

Signal Word Danger!

Hazard Statement(s)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary statement(s)

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe mist or spray.
P264	Wash thoroughly after handling.
P280	Wear rubber, neoprene or nitrile gloves and protective clothing, and safety goggle or a face shield to protect eyes and face.

Response

P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse SKIN with water or shower.
P363	Wash contaminated clothing before reuse.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P405	Store locked up.
P501	Dispose of contents and container to appropriate facility in accordance with Federal, State, and local regulations.

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SECTION 3. HAZARDOUS INGREDIENTS INFORMATION

INGREDIENT	CAS No.	EINECS No.	% or Range	GHS Classification	
Water	7732-18-5	231-791-2	60-80	Not classified	
Sodium hydroxide	1310-73-2	215-185-5	15-20	H314: Skin Corrosion H318: Eye Damage H402: Aquatic Acute	Category 1A Category 1 Category 3

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.
Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Note to Physician: Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, consider the use of therapeutic doses of steroids. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

4.2. Signs and Symptoms of Exposure:

Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.

SECTION 5. FIREFIGHTING MEASURES

Suitable and Unsuitable Extinguishing Media:
This product is not flammable. However, sodium hydroxide solutions can react with non-ferrous metals to generate flammable hydrogen gas. Use dry chemical, carbon dioxide, or foam. Use water to cool fire-exposed containers and to protect personnel. Do not direct a solid stream of water or foam into hot, burning pools. This may result in frothing and increase fire intensity.

Special Equipment and Precautions for Fire–Fighters:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment and clothing during clean-up.

Methods and Material for Containment and Clean-Up: Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, then neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. Do not use aluminum tools to collect absorbed material or aluminum containers to store collected waste. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities (700 gallons) of this product. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. Remove contaminated clothing immediately.

Pro-Yellow™

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Keep in a tightly closed container. Protect from physical damage. Keep this and all chemicals out of the reach of children. Avoid contact with eyes and skin. Avoid inhalation of vapors and mists. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities: Store locked up. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues. Do not store with aluminum or magnesium. Do not mix with acids or organic materials. Observe all warnings and precautions listed for the product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits:
Sodium Hydroxide:
OSHA Permissible Exposure Limit (PEL): 15 mg/m3 Ceiling
ACGIH Threshold Limit Value (TLV): 15 mg/m3 Ceiling

Appropriate Engineering Controls:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators: If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear rubber, neoprene, nitrile, Saranex® boots, gloves, lab coat, apron or coveralls, as necessary and appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities or a source of running water in the work area.

Work Hygienic Practices: Use proper industrial hygiene practices to minimize hazardous exposure. Wash hands after handling this material, and before eating, smoking or using the bathroom.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow liquid
Odor:	Odorless
Odor Threshold:	Not established
pH @ 25°C:	14
Melting Point (Pour Point) :	<25°F
Boiling Point :	> 220°F
Flash Point:	Not established
Evaporation Rate (Water = 1):	>1
Flammable Limits:	Not established
LEL:	N/A
UEL:	N/A
Vapor pressure (mm Hg):	Same as water
Vapor Density (Air = 1):	Same as water
Specific gravity (H2O = 1):	1.150
Solubility in water:	Water miscible
Octanol/Water Partition Coefficient:	Not available
Autoignition Temperature:	Not available
Decomposition Temperature:	Not available

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under ordinary conditions of use and storage.
Possibility of Hazardous Reactions: Will not occur.
Conditions to Avoid: Extreme heat, incompatibles.
Incompatible Materials: Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitro methane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.
Hazardous Decomposition Products: Sodium oxide. Decomposition by reaction with non-ferrous metals releases flammable and explosive hydrogen gas.

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SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Inhalation: Effects from inhalation of mist and spray may cause serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may vary from mild to severe irritation, sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion: Symptoms may include burns of mouth, throat, and stomach bleeding, vomiting, diarrhea, fall in blood pressure.
Skin Contact: Contact with skin can cause redness, irritation or severe burns and scarring with greater exposures.
Eye Contact: Contact with mist, spray or liquid causes redness, severe irritation or burning in eyes. Prolonged exposures can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure: Prolonged contact with dilute solutions or mists has a destructive effect upon tissue.
Carcinogenic effects: Not classified
Teratogenicity/Reproductive toxicity: Not classified
Mutagenic effects: Not classified
Numerical Measures of Toxicity:

Sodium hydroxide (irritation data): Skin, rabbit: 500 mg/24H severe;
Eye rabbit: 50 ug/24H severe.

Sodium Carbonate (acute toxicity): Oral, LD50, rat: >2,000 mg/kg
Inhalation, rat: 2.3 mg/l 2h
(chronic toxicity): Inhalation, rat, target organ: lungs, 0.07 mg/l, observed effect. No effect on reproduction.
Irritation: Rabbit, non-irritant (skin).
Rabbit, irritant (eyes).

Sodium Gluconate: Ivn-rbt LDLo: 7630 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Sodium hydroxide: Fish: Carp: 180ppm (LC100); 24H;
Aquatic: This product is toxic to Aquatic Life. Toxicity is primarily associated with pH.
Persistence and Degradability: Biodegradable
Bioaccumulative Potential: No data available
Mobility in Soil: No data available. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Other Adverse Effects: None known
Other: For more information, see *"HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."*

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of spill clean- up and other wastes in accordance with Federal, State, and local regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Treat empty containers as hazardous. Dispose of container and unused contents in accordance with federal, state and local requirements. **RCRA Hazard Class (if discarded):** CORROSIVE D002.

SECTION 14. TRANSPORTATION INFORMATION

US DOT: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
DOT Proper Shipping Name: Corrosive liquid, basic inorganic, N.O.S. (contains sodium hydroxide)
DOT Hazard Class: 8
UN Number: UN3266
Packing Group: II
IMO: UN3266, Corrosive liquid, basic, inorganic, N.O.S. (contains sodium hydroxide), 8, PGII
Limited Quantity: No
Marine Pollutant: No
ADR/RID Class: 8

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SECTION 14. TRANSPORTATION INFORMATION (cont.)

ADR/RID Packing Group: II
IMDG Hazard Class: 8
IMDG Packing Group: II
ADNR Class: 8
ADNR Item: UN3266
IATA Hazard Class: 8
IATA Packing Group: II
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15. REGULATORY INFORMATION

US EPA
Comprehensive Environmental Response Compensation and Liability
Act of 1980 (CERCLA) requires notification of the National Response Center of release quantities of Hazardous Substances is not required for this material.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on threshold planning quantities and release reporting based on reportable quantities in 40 CFR 355 (used for SARA 302, 304, 311, and 312) is not required for quantities below 250 pounds.
Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This material is not subject to reporting requirements.
Toxic Substances Control Act (TSCA) Status: The ingredients of this product is not listed on the TSCA inventory.

State Right to Know
California Proposition 65: This product does not contain any materials on the Proposition 65 List of Chemicals Known to Cause Cancer or Reproductive Toxicity.
Massachusetts: Hazardous substances and extraordinarily hazardous substances must be identified.
Pennsylvania: Hazardous substances must be identified.
California SCAQMD Rule 443.1 (VOC's): None

Chemical Inventory Status
Canada

Ingredient	TSCA	EC	Japan	Australia	Korea	DSL	NDSL	Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

Federal, State & International Regulations

Ingredient	SARA 302 RQ	SARA 313 TPQ	TSCA Chemical	CERCLA 261.33 8(d) RCRA	List -
Sodium Hydroxide (1310-73-2)	No	No	No	1000	No

Chemical Weapons Convention: No
TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: Yes (Mixture / Liquid)
Australian Hazchem Code: 2R
Poison Schedule: S6

WHMIS:
This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.

SECTION 16. OTHER INFORMATION:

Revision Summary: All Sections: New GHS Format

SDS DATE REVISED: 10/12/2015

RCRA Hazard Class (if discarded): CORROSIVE D002.

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SECTION 16. OTHER INFORMATION (cont.)

HMIS III Ratings
HMIS III®

Health	3
Flammability	0
Physical Hazard	1
Personal Protection	I

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5 pgs CK VP68-VP68-32

SAFETY DATA SHEET

DIVERSITECH

SDS# VP68-01, VP68-32
Date: November 2015

Total Pages: 5

Vacuum Pump Oil

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Vacuum Pump Oil
Catalog Number: VP68-01, VP68-32
Manufactured by: DiversiTech Corporation
6650 Sugarloaf Parkway
Duluth, GA, 30097
Information Phone No.: 1+678.542.3600
EMERGENCY Phone No.: 1 800.255.3924 Chem-Tel (Chemical Emergencies)
PREPARED BY: V. Leone

SECTION 2. HAZARDOUS IDENTIFICATION

GHS Classification:
This chemical does not meet the hazardous criteria set forth by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). However, this Safety Data Sheet (SDS) contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product.

Label Elements:

The product does not require a hazard warning label in accordance with GHS criteria.

Hazard Statement(s)

No known significant effects or critical hazards.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS No.	EINECS No.	% or Range	GHS Classification
Hydrocarbon Petroleum Distillates,heavy	64742-65-0	265-169-7	100	Not Classified
Refined parrafinic oil				

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

Ingestion: In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

Skin Contact: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the effected person should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.

Eye Contact: Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

4.2. Signs and Symptoms of Exposure:

Inhalation: No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

Ingestion: Low toxicity if swallowed.

Skin Contact: Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/ folliculitis.

Eye Contact: May cause slight irritation to eyes.

Other Information: High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Ingestion may result in nausea, vomiting and/or diarrhea.

Aggravated Medical Condition: Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.

Vacuum Pump Oil

SECTION 5. FIREFIGHTING MEASURES

Suitable and Unsuitable Extinguishing Media:

Any extinguisher suitable for Class B fires, dry chemical, CO_2, water spray or firefighting foam.

Special Equipment and Precautions for Fire–Fighters:

Firefighters should wear NIOSH/MSHA-approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing. Isolate area around container involved in fire. Burning fluid may evolve irritating/noxious fumes, smoke carbon monoxide, and minor amounts of sulfur and nitrogen. Water may cause frothing or splattering when used as an extinguishing agent.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Avoid contact with spilled or released material. For guidance on selection of personal protective equipment. See Exposure Controls/Personal Protection Section of this MSDS. See Disposal Considerations Section for information on disposal. Observe all relevant local and international regulations.

Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent.

Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with skin, eyes, and clothing. Keep this and all chemicals out of the reach of children.

Conditions for Safe Storage, Including any Incompatibilities: Store in a dry, cool, well-ventilated area. Empty containers retain residue and can be dangerous. All containers should be disposed of in an environmentally safe manner, and in accordance with all governmental regulations. Empty drums should be consigned to a licensed drum reconditioner. Storage Temperature: 0 - 50 °C / 32 - 122 °F.

Recommended Materials: For containers or container linings, use mild steel or high density polyethylene.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits:

White Mineral Oil:
OSHA: 5 mg/m3, 8hr (oil mist)
ACGIH: 10 mg/m3, 8hr (oil mist)

Appropriate Engineering Controls: Local exhaust is recommended when used in enclosed areas. Use in a well-ventilated area. If mist is being generated and exceeds the TLV, a respiratory program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed.

Skin Protection: Neoprene or nitrile gloves recommended to minimize skin contact. Other materials may be used if there is documented evidence of compatibility.

Eye Protection: Safety glasses (ANSI Z87.1) or approved equivalent.

Other Protective Clothing: Neoprene aprons, overshoes, oversleeves or other impervious clothing as necessary to minimize exposure.

Work Hygienic Practices: Use proper industrial hygiene practices to minimize hazardous exposure. Wash hands after handling this material, and before eating, smoking or using the bathroom.

Vacuum Pump Oil

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light yellow liquid
Odor: Petroleum oil odor
Odor Threshold: Not established
pH @ 25°C: Not applicable
Melting Point (Pour Point): Not applicable
Boiling Point: >260°C (176°F)
Flash Point: 165°C (330°F) COC
Freezing Point: Not applicable
Evaporation Rate (Water = 1): >10
Flammable Limits:
LEL: 0.9% by volume
UEL: 7.0% by volume
Vapor pressure (mm Hg): <0.01 mm Hg
Vapor Density (Air = 1): < 5
Viscosity: 6.76 mm 2/s @ 100 C
Solubility in water: Insoluble in water
Octanol/Water Partition Coefficient: Not available
Autoignition Temperature: 224 C (COC)
Decomposition Temperature: Not available

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable

Possibility of Hazardous Reactions: Will not occur.

Conditions to Avoid: Excessive heat; formation of oil mist

Incompatible Materials: Strong oxidizers, strong alkalis, strong acids, and compressed oxygen

Hazardous Decomposition Products: Analogous compounds evolve carbon monoxide, carbon dioxide, and other unidentified fragments when burned.

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Inhalation: No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

Ingestion: Not expected to be toxic.

Skin Contact: Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Eye Contact: May cause slight irritation to eyes.

Other Information: High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Ingestion may result in nausea, vomiting and/or diarrhea.

Aggravated Medical Condition: Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.

Carcinogenic effects: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.

Teratogenicity/Reproductive toxicity: Not expected to be a hazard.

Mutagenic effects: Not considered a mutagenic hazard.

Numerical Measures of Toxicity:

Acute Oral Toxicity: Not expected to be toxic: LD50 > 5000 mg/kg, Rat

Acute Dermal Toxicity: Not expected to be toxic: LD50 > 5000 mg/kg, Rabbit

Acute Inhalation Toxicity: Not considered to be an inhalation hazard under normal conditions of use.

Vacuum Pump Oil

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available

Aquatic: Not available.

Persistence and Degradability: Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulative Potential: Contains components with the potential for bioaccumulation.

Mobility in Soil: Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile

Other Adverse Effects: Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone potential or global warming potential.

SECTION 13. DISPOSAL CONSIDERATIONS

Material Disposal: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste collection and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or water courses.

Container Disposal: Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14. TRANSPORTATION INFORMATION

UN Number: None

UN Proper Shipping Name: None

Transport Hazard Class(es): Packing group: None

Environmental Hazards: Not environmentally Hazardous Substance of Marine Pollutant

ADR/RID Transport Information: Not dangerous for transport under ADR/RID, IMO and IATA/ICAO regulations.

ADR/RID Class: None Allocated

ADR/RID Packing Group: None Allocated

IMDG Hazard Class: None Allocated

IMDG Packing Group: None Allocated

ADNR Class: None Allocated

ADNR Item: None Allocated

IATA Hazard Class: None Allocated

IATA Packing Group: None Allocated

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

EINECS: Not listed.

TSCA: Not listed.

DSL: Not listed.

SARA Hazard Categories (311/312/313) SARA 311/312: No Hazards.

Section 313: Emissions and release reporting may be required for users of this product within the manufacturing sector. This does not apply to service companies.

State Regulatory Status

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)
This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Vacuum Pump Oil

SECTION 16. OTHER INFORMATION:

Revision Summary: All Sections: New GHS Format

SDS DATE REVISED: 11/4/2015

NFPA/HMIS III Ratings: Health: **1** Flammability: **1** Reactivity: **0**

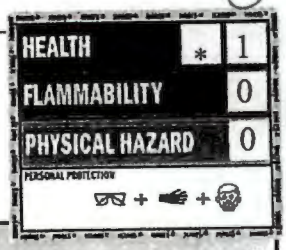
Refer to NFPA 704 "Identification of the Fire Hazards of materials" for further information

HMIS III®

Health	1
Flammability	1
Physical Hazard	0
Personal Protection	B

This information is, to the best of our knowledge and belief, accurate and reliable as of the date completed. However no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the completeness and suitability of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.

CA (All Certainteed Products) 21 pgs



‡

CertainTeed
SAINT-GOBAIN

Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • **OEM/Mechanical - CT10101-5**

Synonyms • Commercial Blanket Insulation; HT Blanket; CertaPro™ Board; Crimp Wrap™; Insulation for Flex Duct; Metal Building Insulation 202-96; Canadian Metal Building Insulation; Soft Touch™ Duct Wrap; Quickwrap Ductwrap; Marine Ductwrap; ToughGard® Duct Board; ToughGard® BMC Liner Board; ToughGard® R Duct Liner (1/2"); ToughGard® Rigid Liner Board; ToughGard® T Duct Liner; Ultra* Duct™ Black Duct Board; ToughGard® Ultra*Round Spiral Duct Liner; Universal Blanket

Product Code • 30-36-045

Relevant identified uses of the substance or mixture and uses advised against

Recommended use • Acoustical & Thermal Insulation

Details of the supplier of the safety data sheet

Manufacturer • CertainTeed Corporation
P.O. Box 860
Valley Forge, PA 19482-0101
United States
www.certainteed.com
CertainTeed - EHS@saint-gobain.com

Telephone (General) • 610-341-7000

Telephone (Technical) • (610) 341-7000 - 9 AM – 5 PM (Eastern Time – USA)

Telephone (General) • (800) 274-8530 - Main Number

Emergency telephone number

Manufacturer • 800-527-3887

Manufacturer • (800) 424-9300 - Chemtrec

Manufacturer • (703) 527-3887 - Outside of the U.S. Chemtrec

Key to abbreviations
‡ = HMIS is a registered trademark of the American Coatings Associati

Section 2: Hazard Identification

United States (US)
According to OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012 • Carcinogenicity 2 - H351

Label elements

OSHA HCS 2012

WARNING

Hazard statements • Suspected of causing cancer. - H351

Precautionary statements

Prevention • Obtain special instructions before use. - P201
Do not handle until all safety precautions have been read and understood. - P202
Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response • IF exposed or concerned: Get medical advice/attention. - P308+P313

Storage/Disposal • Store locked up. - P405
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

Other hazards

OSHA HCS 2012 • Under United States Regulations (29 CFR 1900.1200 - Hazard Communication Standard) this product is considered Hazardous.

Canada

According to WHMIS

Classification of the substance or mixture

WHMIS • Other Toxic Effects - D2A

Label elements

WHMIS

• Other Toxic Effects - D2A

Other hazards

WHMIS • In Canada, the product mentioned above is considered Hazardous under the Workplace Hazardous Materials Information System (WHMIS).

See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

Substances

• Material does not meet the criteria of a substance.

Mixtures

Hazardous Components					
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Glass, oxide, chemicals	**CAS:**65997-17-3	60% TO 93%	NDA	**OSHA HCS 2012:** Data Lacking	See footnote "a"

Phenol, polymer with formaldehyde and urea	CAS:25104-55-6	10% TO 30%	Ingestion/Oral-Rat LD50 • 7 g/kg	**OSHA HCS 2012:** Data Lacking	See footnote "b"
Cured polymer adhesive	NDA	1% TO 5%	NDA	**OSHA HCS 2012:** Not Hazardous	See footnote "c"
Acetic acid, vinyl ester, polymer	NDA	0% TO 5%	Ingestion/Oral-Rat LD50 • >25 g/kg	**OSHA HCS 2012:** Data Lacking	See footnote "d"
Acrylic-based polymer	NDA	0% TO 5%	NDA	**OSHA HCS 2012:** Data Lacking	See footnote "e"
Antimony oxide (Sb2O3)	CAS:1309-64-4	0% TO 5%	Ingestion/Oral-Rat LD50 • >34 g/kg	**OSHA HCS 2012:** Carc 2; Eye Irrit 2B	See footnote "f"
Latex textile rubber polymer	NDA	0% TO 5%	NDA	**OSHA HCS 2012:** Data Lacking	See footnote "g"
Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	NDA	0% TO 5%	NDA	**OSHA HCS 2012:** Data Lacking	See footnote "h"
Phenolic resin binder (cured)	NDA	< 25%	NDA	**OSHA HCS 2012:** Data Lacking	See footnote "i"
Hydrocarbon polymer	NDA	< 2%	NDA	**OSHA HCS 2012:** Data Lacking	See footnote "j"
Carbon Black	CAS:1333-86-4	< 0.04%	Ingestion/Oral-Rat LD50 • >15400 mg/kg	**OSHA HCS 2012:** Workplace exposure limit	See footnote "k"

Key to abbreviations

a = Contained in: Commercial Blanket Insulation; HT Blanket; CertaPro™ Board (Plain,FSK, ASJ, PSK); Crimp Wrap™ (ASJ, Foil Scrim); Insulation for Flex Duct; Metal Building Insulation 202-96; Canadian Metal Building Insulation; Soft Touch™ Duct Wrap (Plain, FSK, PSK); Quickwrap Ductwrap; Marine Ductwrap; ToughGard® Rigid Liner Board; ToughGard® R Duct Liner (1/2"); Universal Blanket (Plain, FSK); ToughGard® Duct Board; ToughGard® T Duct Liner; ToughGard® Ultra*Round Spiral Duct Liner; ToughGard® BMC Liner Board

b = Contained in: Commercial Blanket Insulation; HT Blanket; CertaPro™ Board (Plain,FSK, ASJ, PSK); Crimp Wrap™ (ASJ, Foil Scrim); Insulation for Flex Duct; Metal Building Insulation 202-96; Canadian Metal Building Insulation; Soft Touch™ Duct Wrap (Plain, FSK, PSK); Quickwrap Ductwrap; Marine Ductwrap; ToughGard® Rigid Liner Board; ToughGard® R Duct Liner (1/2"); Universal Blanket (Plain, FSK); ToughGard® Duct Board; ToughGard® T Duct Liner; ToughGard® Ultra*Round Spiral Duct Liner; ToughGard® BMC Liner Board

c = Contained in: ToughGard® BMC Liner Board

d = Contained in: CertaPro™ Board(FSK, ASJ, PSK); ToughGard® Duct Board; ToughGard® Ultra*Round Spiral Duct Liner

e = Contained in: ToughGard® R Duct Liner (1/2")

f = Contained in: CertaPro™ Board (FSK, ASJ, PSK); Crimp Wrap™ (ASJ); Soft Touch™ Duct Wrap (FSK, PSK); Quickwrap Ductwrap (FSK); Marine Ductwrap (FSK); ToughGard Rigid Liner Board with Enhanced Surface; ToughGard® Rigid Liner Board; ToughGard® R Duct Liner (1/2"); Universal Blanket (FSK); ToughGard® Duct Board; ToughGard® T Duct Liner; ToughGard® Ultra*Round Spiral Duct Liner

g = Contained in: ToughGard® T Duct Liner

h = Contained in: CertaPro™ Board (ASJ); Crimp Wrap (ASJ); ToughGard® Duct Board; ToughGard® T Duct Liner; ToughGard® Ultra*Round Spiral Duct Liner

i = Contained in: ToughGard® T

j = Contained in: ToughGard® BMC Liner Board

k = Contained in: ToughGard® BMC Liner Board

See Section 11 for Toxicological Information.

Section 4: First-Aid Measures

Description of first aid measures

Inhalation

- Remove to fresh air immediately and notify medical personnel and supervisor. Give artificial respiration if victim is not breathing. If breathing is difficult, give oxygen.

Skin

- After contact with skin, take off immediately all contaminated clothing and wash immediately with plenty of soap and water. If irritation develops and persists, get medical attention .

Eye

- Do not rub or scratch your eyes. Immediately flush eyes with plenty of water for at

least 15 minutes and notify medical personnel and supervisor. If eye irritation persists: Get medical advice/attention.

Ingestion

- Consult a physician if unusual reaction is noted. Product is not intended nor is it likely to be ingested or eaten.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media

- Use any media suitable for the surrounding fires.

Unsuitable Extinguishing Media

- None known.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Does not support combustion. These products contain a cured binder and various facings which contain retardant systems to reduce the possibility of fire. Use of plasma or other type of cutting tool may cause the release of toxic fumes and smoke. Facings on these products may burn. Do not leave facing exposed when working close to an open flame. If burned, the materials could release toxic fumes.

Hazardous Combustion Products

- Does not support combustion. If burned, the materials could release toxic fumes and smoke. Combustion products may include oxides of carbon, sulfur and other potentially volatile organic compounds, oxides of arsenic, oxides of nitrogen, hydrogen chloride, antimony, bromide gas, hydrogen bromide, formaldehyde, and trace hydrogen cyanide.

Advice for firefighters

- Fire fighters should avoid inhaling any combustion products.
  Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Avoid contact with skin and eyes during clean-up. Take proper precautions to minimize exposure by using appropriate personal protective equipment.

Emergency Procedures

- Persons not wearing appropriate protective equipment should be excluded from area of spill until clean-up has been completed. Ventilate the contaminated area.

Environmental precautions

- Avoid run off to waterways and sewers.

Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Containment of this material should not be necessary. Remove sources of ignition. Collect dust or particulates using a vacuum cleaner with a HEPA filter. Avoid the generation of dusts during clean-up.

Section 7 - Handling and Storage

Precautions for safe handling

Handling

- Do not breathe dust from this material. Keep this product from heat, sparks, or open flame. Use this product with adequate ventilation. Always wash work clothes separately from other clothing. Wipe out the washer or sink to prevent loose glass fibers from getting on other clothing. Wash thoroughly after handling. Use personal protective equipment as described in Section 8.

Conditions for safe storage, including any incompatibilities

Storage

- Store in a dry place and under cover to protect product.

Incompatible Materials or Ignition Sources

- Hydrofluoric acid.

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines

	Result	ACGIH	Canada British Columbia	Canada Manitoba	Canada New Brunswick	Canada Northwest Territories
Antimony oxide (Sb2O3) as Antimony compounds	TWAs	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*	production, exposure by all routes should be carefully controlled to levels as low as possible	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*	0.5 mg/m3 TWA (production, handling and use, as Sb)
	STELs	Not established	Not established	Not established	Not established	1.5 mg/m3 STEL (production, handling and use, as Sb)
Carbon Black (1333-86-4)	TWAs	3 mg/m3 TWA (inhalable fraction)	3 mg/m3 TWA (inhalable)	3 mg/m3 TWA (inhalable fraction)	3.5 mg/m3 TWA	3.5 mg/m3 TWA
	STELs	Not established	Not established	Not established	Not established	7 mg/m3 STEL
Glass, oxide, chemicals as Glass wool fiber	TWAs	1 fiber/cm3 TWA (respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination, listed under Synthetic vitreous fibers) *as Glass wool fiber*	1 fibre/cm3 TWA (fibres >5 µm, with an aspect ratio of >=3:1, as determined by the membrane filter method at 400-450 times magnification (4 mm objective), using phase-contrast illumination, listed under Synthetic vitreous fibres) *as Glass wool fiber*	1 fiber/cm3 TWA (respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination, listed under Synthetic vitreous fibers) *as Glass wool fiber*	1 fibre/cm3 TWA (fibres >5 µm with a diameter <3 µm, aspect ratio >5:1) *as Glass wool fiber*	3 fibre/cm3 TWA (with a diameter <=3.5 µm and a length >=10 µm); 5 mg/m3 TWA (total mass) *as Glass wool fiber*

Exposure Limits/Guidelines (Con't.)

	Result	Canada Nova Scotia	Canada Nunavut	Canada Ontario	Canada Quebec	Canada Yukon
Antimony oxide (Sb2O3) as Antimony compounds	TWAs	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*	0.5 mg/m3 TWA (production, handling and use, as Sb)	exposure by all routes should be carefully controlled to levels as low as possible	0.5 mg/m3 TWAEV (as Sb)	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*
			1.5 mg/m3 STEL			0.75 mg/m3 STEL (as Sb)

	STELs	Not established	(production, handling and use, as Sb)	Not established	Not established	*as Antimony compounds*
Carbon Black (1333-86-4)	TWAs	3 mg/m3 TWA (inhalable fraction)	3.5 mg/m3 TWA	3.5 mg/m3 TWA	3.5 mg/m3 TWAEV	3.5 mg/m3 TWA
	STELs	Not established	7 mg/m3 STEL	Not established	Not established	7 mg/m3 STEL
Glass, oxide, chemicals as Glass wool fiber	TWAs	1 fiber/cm3 TWA (respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination, listed under Synthetic vitreous fibers) *as Glass wool fiber*	3 fibre/cm3 TWA (with a diameter <=3.5 µm and a length >=10 µm); 5 mg/m3 TWA (total mass) *as Glass wool fiber*	1 fibre/cm3 TWA (length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450 times magnification (4-mm objective), using phase-contrast illumination, respirable, listed under Synthetic Vitreous Fibres (Man Made Mineral Fibres)) *as Glass wool fiber*	1 fibre/cm3 TWAEV (respirable, listed under Fibres - Artificial vitreous mineral fibres) *as Glass wool fiber*	30 mppcf TWA; 10 mg/m3 TWA (respirable mass) *as Glass wool fiber*

Exposure Limits/Guidelines (Con't.)

	Result	Mexico	NIOSH	OSHA
Antimony oxide (Sb2O3) as Antimony compounds	TWAs	0.5 mg/m3 TWA LMPE-PPT (handling and use, as Sb); 1 mg/m3 TWA LMPE-PPT (production)	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*	0.5 mg/m3 TWA (as Sb) *as Antimony compounds*
Carbon Black (1333-86-4)	STELs	7 mg/m3 STEL [LMPE-CT]	Not established	Not established
	TWAs	3.5 mg/m3 TWA LMPE-PPT	3.5 mg/m3 TWA; 0.1 mg/m3 TWA (Carbon black in presence of Polycyclic aromatic hydrocarbons, as PAH)	3.5 mg/m3 TWA
Glass, oxide, chemicals	TWAs	Not established	3 fiber/cm3 TWA (fibers <= 3.5 µm in diameter and >= 10 µm in length); 5 mg/m3 TWA (total) *as Glass wool fiber*	Not established

Exposure controls

Engineering Measures/Controls
- Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces. Avoid spread of fiber glass dust.

Personal Protective Equipment

Respiratory
- A properly fitted NIOSH approved N 95 series disposable dust respirator such as a 3M Brand #8210, #8511, #8233 or equivalent, in high humidity environments should be used when: high dust levels are encountered; the level of glass fibers in the air exceeds the occupational exposure limits; or if irritation occurs.

Eye/Face
- Safety glasses with side shields should be worn at a minimum. In dusty environmer chemical goggles should be worn.

Skin/Body
- Work clothing sufficient to prevent all skin contact should be worn, such as coveralls,

long sleeves and cap.

General Industrial Hygiene Considerations

- Use good industrial hygiene practices in handling this material. Availability of eye wash fountains are recommended. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

STEL = Short Term Exposure Limits are based on 15-minute exposures
TWAEV = Time-Weighted Average Exposure Value
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Yellow solid with a faint resin odor.
Color	Yellow or black.	Odor	Faint resin odor.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	> 2550 F(> 1398.8889 C)	Melting Point	2550 F(1398.8889 C)
Decomposition Temperature	Data lacking	pH	Data lacking
Bulk Density	8 lb(s)/ft³	Water Solubility	Slightly Soluble
Viscosity	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
Flammability (solid, gas)	Not flammable.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

Section 10: Stability and Reactivity

Reactivity

- No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable under normal conditions of use.

Possibility of hazardous reactions

- Hazardous polymerization not indicated.

Conditions to avoid

- Keep away from heat, ignition sources and incompatible materials.

Incompatible materials

- Hydrofluoric acid.

Hazardous decomposition products

- Hazardous decomposition products may include oxides of carbon, sulfur and other potentially volatile organic compounds, oxides of arsenic, oxides of nitrogen, hydrogen chloride,antimony, bromide gas, hydrogen bromide, formaldehyde, and trace hydrogen cyanide.

Section 11 - Toxicological Information

Information on toxicological effects

Component Name	CAS	Data
Phenol, polymer with formaldehyde and urea (10% TO 30%)	25104-55-6	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 7 g/kg
Acetic acid, vinyl ester, polymer (0% TO 5%)	9003-20-7	**Acute Toxicity:** orl-rat LD50:>25 gm/kg
Antimony oxide (Sb2O3) (0% TO 5%)	1309-64-4	**Acute Toxicity:** orl-rat LD50:>34 gm/kg; **Irritation:** eye-rbt 100 mg MLD

GHS Properties	Classification
Acute toxicity	**OSHA HCS 2012** • Classification criteria not met
Aspiration Hazard	**OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**OSHA HCS 2012** • Carcinogenicity 2
Germ Cell Mutagenicity	**OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**OSHA HCS 2012** • Classification criteria not met
Skin sensitization	**OSHA HCS 2012** • Classification criteria not met
STOT-RE	**OSHA HCS 2012** • Classification criteria not met
STOT-SE	**OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**OSHA HCS 2012** • Classification criteria not met

Route(s) of entry/exposure
- Inhalation, Skin, Eye, and Ingestion

Medical Conditions Aggravated by Exposure
- Pre-existing conditions which may be aggravated by mechanical irritants upon inhalation or skin contact.

Potential Health Effects

Inhalation

Acute (Immediate)
- Temporary irritation of nose and throat may occur.

Chronic (Delayed)
- Use of these products has not been shown to cause cancer in humans. Fiber glass wool is a possible cancer hazard. Fiber glass wool has caused cancer in animals but has not produced cancer by inhalation in humans.

Skin

Acute (Immediate)
- Temporary irritation of the skin may occur in some individuals.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- Temporary irritation or redness may occur.

Chronic (Delayed)
- No data available.

Ingestion

Acute (Immediate)
- Ingestion of this product unlikely.

Chronic (Delayed)
- No data available

Carcinogenic Effects
- This product contains antimony trioxide which may cause cancer based on sufficient animal data. This product contains glass wool insulation fibers. Following a thorough review of all the medical-scientific data available at a meeting in October 2001, the IARC panel lowered the classification for glass wool insulation fibers from a Group 2B classification ("possibly carcinogenic to humans") to a Group 3 classification ("not classifiable as to carcinogenicity to humans"). According to IARC, there is "no evidence of increased risks of lung cancer or of mesothelioma from occupational exposures during manufacturing of these materials, and inadequate evidence overall of any cancer risk." U.S., California and international authorities have all agreed that biosoluble and inhalable glass fibers should not be labeled as a possible cancer hazard. The U.S. National Toxicology Program ("NTP") and the California Office of Environmental Health Hazard Assessment ("OEHHA") actions mean that a cancer warning label for biosoluble fiber glass is no longer required under Federal or California Law.

Carcinogenic Effects			
	CAS	IARC	NTP
Antimony oxide (Sb2O3)	1309-64-4	Group 2B-Possible Carcinogen	Not established
Glass, oxide, chemicals as Glass wool fiber	NDA	Group 3-Not Classifiable	Reasonably Anticipated to be Human Carcinogen

Key to abbreviations
LD = Lethal Dose
MLD = Mild

Section 12 - Ecological Information

Toxicity
- Binder-coated fiber glass is hydrophobic, therefore, no adverse environmental effects would be expected if this product were accidentally released in the water or soil. No harm to fish or wildlife would be caused by this product.

Persistence and degradability
- No information available for the product.

Bioaccumulative potential
- No information available for the product.

Mobility in Soil
- No information available for the product.

Other adverse effects
Potential Environmental Effects
- No environmental effects expected.

Section 13 - Disposal Considerations

Waste treatment methods
Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

Special precautions for user

- None known.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Chronic

		State Right To Know		
Component	CAS	MA	NJ	PA
Glass, oxide, chemicals	65997-17-3	Yes	No	Yes
Phenol, polymer with formaldehyde and urea	25104-55-6	No	No	No
Cured polymer adhesive	NDA	No	No	No
Acetic acid, vinyl ester, polymer	9003-20-7	No	No	No
Acrylic-based polymer	NDA	No	No	No
Antimony oxide (Sb2O3)	1309-64-4	Yes	Yes Yes	Yes Yes
Latex textile rubber polymer	NDA	No	No	No
Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	No	No	No
Phenolic resin binder (cured)	NDA	No	No	No
Hydrocarbon polymer	NDA	No	No	No
Carbon Black	1333-86-4	Yes	Yes	Yes

Inventory				
Component	CAS	Canada DSL	Canada NDSL	TSCA
Glass, oxide, chemicals	65997-17-3	Yes	No	Yes
Phenol, polymer with formaldehyde and urea	25104-55-6	Yes	No	Yes
Cured polymer adhesive	NDA	No	No	No
Acetic acid, vinyl ester, polymer	9003-20-7	Yes	No	Yes
Acrylic-based polymer	NDA	No	No	No
Antimony oxide (Sb2O3)	1309-64-4	Yes	No	Yes
Latex textile rubber polymer	NDA	No	No	No
Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	Yes	No	Yes
Phenolic resin binder (cured)	NDA	No	No	No
Hydrocarbon polymer	NDA	No	No	No
Carbon Black	1333-86-4	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Uncontrolled product according to WHMIS classification criteria (listed under Glass wool); D2A (listed under Mineral wool fiber)
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	D2A (In certain cases, this classification does not apply. For more information, consult the section Substance Specific Issues - Carbon Black, non-respirable on Health Canada's WHMIS Division website.)
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	D2A
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	1 %
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	1 %
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	1 %
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Environment

Canada - 2004 NPRI (National Pollutant Release Inventory)

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Part 1, Group 1 Substance
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - 2005 NPRI (National Pollutant Release Inventory)

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Part 1, Group 1 Substance
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - CEPA - Greenhouse Gases Subject to Mandatory Reporting

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - CEPA - Priority Substances List

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada British Columbia

Environment

Canada - British Columbia - Ozone Depleting Substances

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada Manitoba

Environment

Canada - Manitoba - Ozone Depleting Substances and Other Halocarbons - Class 1

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - Manitoba - Ozone Depleting Substances and Other Halocarbons - Class 2

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed

• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada Nova Scotia

Environment

Canada - Nova Scotia - Ozone Layer Protection Regulations

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada Ontario

Environment

Canada - Ontario - Airborne Contaminant Reporting - Table 2A

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - Ontario - Airborne Contaminant Reporting - Table 2B

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - Ontario - Ozone Depleting Substances and Other Halocarbons - Class 1 Substances

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - Ontario - Ozone Depleting Substances and Other Halocarbons - Class 2 Substances

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada - Ontario - Ozone Depleting Substances and Other Halocarbons - Halocarbons

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Canada Yukon

Environment

Canada - Yukon - Ozone Depleting Substances and Other Halocarbons

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed

• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Mexico

Other

Mexico - Hazard Classifications

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Mexico - Regulated Substances

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed

• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	(including mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers [or other mineral derived fibers] of average diameter 1 µm or less)
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	(including any unique chemical substance that contains Antimony as part of its infrastructure)
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	1000 lb final RQ; 454 kg final RQ
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed

• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	1.0 % de minimis concentration (Chemical Category N010)
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed

• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	carcinogen, initial date 7/1/90 (inhalable and biopersistent)
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	carcinogen, initial date 2/21/03 (airborne, unbound particles of respirable size)
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	carcinogen, initial date 10/1/90
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Not Listed
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Not Listed
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Not Listed
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

United States - Rhode Island

Labor

U.S. - Rhode Island - Hazardous Substance List

• Glass, oxide, chemicals as Glass wool fiber		60% TO 93%	Toxic
• Phenol, polymer with formaldehyde and urea	25104-55-6	10% TO 30%	Not Listed
• Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	25038-59-9	0% TO 5%	Not Listed
• Carbon Black	1333-86-4	< 0.04%	Toxic
• Antimony oxide (Sb2O3)	1309-64-4	0% TO 5%	Toxic
• Antimony oxide (Sb2O3) as Antimony compounds		0% TO 5%	Toxic
• Antimony oxide (Sb2O3) as Antimony oxides		0% TO 5%	Not Listed
• Acetic acid, vinyl ester, polymer	9003-20-7	0% TO 5%	Not Listed
• Glass, oxide, chemicals	65997-17-3	60% TO 93%	Not Listed

Section 16 - Other Information

Last Revision Date
- 04/June/2013

Preparation Date
- 26/July/2007

Disclaimer/Statement of Liability
- Reasonable care has been taken in the preparation of this information, but the supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product.

Key to abbreviations

NDA = No Data Available

DD WIT-5

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0

6 pgs

DURO DYNE

SAFETY DATA SHEET

Prepared by Duro Dyne January 30, 2014

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade name:	DURO DYNE WATER BASED ADHESIVE
Product Identifier:	WIT-1, WIT-5, WIT-55
Item #:	5056, 5057, 5058
Supplier Details:	DURO DYNE CORPORATION 81 Spence Street Bay Shore, NY 11706
Information Phone No:	800-899-3876
Emergency Phone No:	800-424-9300 (**CHEMTREC**)

2. HAZARDS IDENTIFICATIONS

Emergency Overview:	Not classified as hazardous.
Physical State:	Liquid
Color:	White
Odor:	Slight
Relevant Routes of Exposure:	Skin, Eyes, Inhalation
CAUTION:	**MAY CAUSE SLIGHT EYE,SKIN, OR RESPIRATORY TRACT IRRITATION ON REPEATED CONTACT**
Potential Health Effects	
Inhalation:	Inhalation of vapors or mists of the product may be irritating to the respiratory system.
Skin Contact:	Prolonged and/or repeated skin contact may result in mild irritation or redness.
Eye Contact:	May cause slight irritation to eyes on contact.
Ingestion:	May cause gastrointestinal tract irritation if swallowed. Not expected under normal conditions of use.
Existing Conditions Aggravated by Exposure:	None known. This material is not considered hazardous by the OSHA Hazard Communication Standard (29CFR 1910.1200). See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components:	None
CAS #:	None
%:	None

4. FIRST-AID MEASURES

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.
Skin Contact:	Wash with soap and water. If symptoms develop and persist, get medical attention.
Eye Contact:	If irritation develops, flush eye immediately with large amounts of water. If irritation persists, seek medical attention or advice.
Ingestion:	Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting. If symptoms develop and persist, get medical attention. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flash Point:	>100.00°C (>212°F) Closed cup
Auto ignition Temperature:	Not applicable
Flammable/Explosive Limits-Lower:	Not applicable
Flammable/Explosive Limits-Upper:	Not applicable
Extinguishing Media:	Use extinguishing measures appropriate to local circumstances and the surrounding environment. Water spray or fog. Foam. Carbon dioxide. Dry chemical.
Special Fire Fighting Procedures:	Fire fighters should wear full-face; self- contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.
Unusual Fire and Explosion Hazards:	This product is an aqueous mixture which will not burn. If evaporated to dryness, the solid residue may pose a moderate fire hazard. Closed containers may rupture (due to build up of pressure) when exposed to extreme heat.
Hazardous Combustion Products:	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

6. ACCIDENTAL RELEASE MEASURE

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental Precautions: No special environmental precautions required. Do not allow material to contaminate ground water system.

Clean Up Methods: Take up with liquid-absorbing material (sand). Wash spillage site thoroughly with soap and water or detergent solution. Dispose of according to Federal, State and local government regulations.

7. HANDLING AND STORAGE

Handling: Avoid extreme temperatures. Protect from freezing. This material should not be spilled, discharged, or flushed into sewers or public waterways. Product contains low level of organic volatiles, which could accumulate in the unvented headspace of drums of bulk storage vessels. Open drums in well ventilated area. Avoid breathing vapors. Do not wear contact lenses.

Storage: For safe storage, store between 1.0°C (33.8°F) and 37°C (98.6°F). Below temperature, limit the product will be irreversibly damaged and no longer usable. Above temperature, limit the product properties change. For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

HAZARDOUS COMPONENTS	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
None	None	None	None	None

Engineering Controls: Handle in accordance with good industrial hygiene and safety practice. General room ventilation is usually adequate.

Respiratory Protection: Under normal conditions, respirator is not normally required. If ventilation is not sufficient to effectively prevent buildup of vapor/mist/fume/dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Eye/Face Protection:	Wear safety glasses with side shields. Do not wear contact lenses.
Skin Protection:	Use of protective coveralls and long sleeves is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid.
Color:	White
Odor:	Slight.
Odor Threshold:	Not available
PH:	4.0-6.0
Vapor Pressure:	17.5000000 mm hg (20.0°C (68°F)
Boiling Point/Range:	>100.00° C (>212°F)
Melting Point/Range:	0.0°C (32°F)(Freezing Point)
Solubility in Water:	Miscible
Partition Coefficient (n-octanol/water):	Not Determined
Specific Gravity:	1.1800
Vapor Density:	>1.0000 (Air=1)
Flash Point:	>100.00°C (>212°F) Closed Cup
Flammable/Explosive Limits-Lower:	Not applicable
Flammable/Explosive Limits-Upper:	Not applicable
Auto Ignition Temperature:	Not applicable
Evaporation Rate:	Same as water
Solubility in Water:	Miscible
Partition Coefficient (n-octanol/water):	Not Determined
VOC Content:	<3.0% (by weight)

10. STABILITY AND REACTIVITY

Stability:	Stable.
Hazardous Reactions:	Will not occur.
Hazardous Decomposition Products:	Under decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular hydrocarbons.
Incompatible Materials:	This product may react with strong oxidizing agents.
Conditions to Avoid:	Freezing. Product may be unstable if frozen.

11. TOXICOLOGICAL INFORMATION

Hazardous Components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
None	None	None	None

Hazardous Components	Health Effects / Target Organs
None	None

12. ECOLOGICAL INFORMATION

Ecological Information: No data available.

13. DISPOSAL CONSIDERATIONS

Recommended Method of Disposal: **Information provided is for unused product only.** Follow all local, state, federal and provincial regulations for disposal. This product is not a RCRA hazardous waste when discarded. Processing, use, or contamination of this product may change the hazard classification and waste management options.

Hazardous Waste Number: None identified.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper Shipping Name: Not regulated
Hazard Class or Division: None
Identification Number: None
Packing Group: None

International Air Transportation (ICAO/IATA)

Proper Shipping Name: Not regulated
Hazard Class or Division: None
Identification Number: None
Packing Group: None

Water Transportation (IMO/IMDG)

Proper Shipping Name: Not regulated
Hazard Class or Division: None
Identification Number: None
Packing Group: None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting minimus
CERCLA/SARA Section 302 EHS:	None above reporting minimus
CERCLA/SARA Section 311/312:	None
CERCLA/SARA Section 313:	None above reporting minimus
California Proposition 65:	No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status:	Contains one or more components listed on the Non-Domestic Substances List. All other components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Records as required by Environment Canada. They may be imported into Canada in limited quantities. Please contact Regulatory Affairs for additional details.
WHMIS Hazard Class:	Not controlled

16. OTHER INFORMATION

Date SDS Prepared:	February 14, 2013
Hazard Rating:	Health: 1 Flammability: 0 Reactivity: 0

DDWS-5 4pgs

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0

SAFETY DATA SHEET
Prepared by Duro Dyne June 11, 2014

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade name: DURO DYNE WATER BASED ADHESIVE
Product Identifier: WSA-5, WSA-55
Item #: 5036, 5037
Supplier Details: DURO DYNE CORPORATION
81 Spence Street
Bay Shore, NY 11706
Information Phone No: 800-899-3876
Emergency Phone No: 800-424-9300 (CHEMTREC)

2. HAZARDS IDENTIFICATIONS

EMERGENCY OVERVIEW

CAUTION: May cause slight eye, skin or respiratory irritation on repeated contact. This product is not considered hazardous by the OSHA Hazard Communication Standard under 29 CFR 1910.1200 See Section 11 for Additional Toxicological information.

Physical State: Liquid.
Color: White
Odor: Slight
Personal Protection: See SDS Section 8

Relevant routes of exposure: Skin, Eyes, Inhalation

Potential Health Effects:
Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system.
Skin Contact: Prolonged and/or repeated skin contact may result in mild irritation or redness.
Eye Contact: May cause slight irritation to eyes on contact.
Ingestion: May cause gastrointestinal tract irritation if swallowed. Not expected under normal conditions of use.

Existing Conditions Aggravated by Exposure: None known

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components	CAS Number	%
None	None	None

4. FIRST-AID MEASURES

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.

Skin Contact: Wash skin with soap and water. If symptoms develop and persist, get medical attention.

Eye Contact: If irritation develops, flush eyes immediately with large amounts of water. If irritation persists, seek medical attention or advice.

Ingestion: Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting. If symptoms develop and persist, get medical attention. Never give anything by mouth to an

unconscious person.

5. FIRE-FIGHTING MEASURES

Flash Point: >100.00°C (>212°F) Closed cup
Autoignition Temperature: Not applicable.
Flammable/Explosive Limits-Lower: Not applicable.
Flammable/Explosive Limits-Upper: Not applicable.
Extinguishing Media: Use extinguishing measures appropriate to local circumstances and the surrounding environment. Water spray or fog, foam carbon dioxide, dry chemical.
Special Firefighting Procedures: Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.
Unusual Fire or Explosion Hazards: This product is an aqueous mixture which will not burn. If evaporated to dryness, the solid residue may pose a moderate fire hazard. Closed containers may rupture (due to build up pressure) when exposed to extreme heat.
Hazardous Combustion Products: Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

6. ACCIDENTAL RELEASE MEASURE

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental Precautions: No special environmental precautions required. Do not allow material to contaminate ground water system.
Clean-Up Methods: Take up with liquid-absorbing material (sand). Wash spillage site thoroughly with soap and water or detergent solution. Dispose of according to Federal, State and local governmental regulations

7. HANDLING AND STORAGE

Handling: Avoid extreme temperatures. Protect from freezing. This material should not be spilled, discharged, or flushed into sewers or public waterways. Product contains low level of organic volatiles which could accumulate in the unvented headspace of drums or bulk storage vessels. Open drums in well ventilated area. Avoid breathing vapors. Do not wear contact lenses.

Storage: For safe storage, store between 1°C (33.8°F) and 37°C (98.6°F). Storage below temperature limit, product will be irreversibly damaged and no longer usable. Storage above temperature limit, the product properties change.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
None	None	None	None	None

Engineering Controls: Handle in accordance with good industrial hygiene and safety practice. General room ventilation is usually adequate.

Respiratory Protection: Under normal conditions, respirator is not normally required. If ventilation is not sufficient to effectively prevent buildup of vapor/mist/fume/dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Eye/Face Protection: Wear safety glasses with side shields. Do not wear contact lenses.

Skin Protection: Use of protective coveralls and long sleeves is recommended

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid.
Color:	White
Odor:	Slight
Odor Threshold:	Not available
pH:	4.0-6.0
Vapor Pressure:	17.5000000 mm hg (20.0°C (68°F))
Boiling Point/Range:	>100.0°C (>212° F)
Melting Point/Range:	0.0°C (32°F) (Freezing point)
Specific Gravity:	1.1800
Vapor Density:	>1.0000 (Air = 1)
Flash Point:	>100.00°C (>212°F) Closed cup
Flammable/Explosive Limits-Lower:	Not applicable
Flammable/Explosive Limits-Upper:	Not applicable
Autoignition Temperature:	Not applicable
Evaporation Rate:	Same as water
Solubility in Water:	Miscible
Partition Coefficient (n-octano/water):	Not determined
VOC Content:	<3.0% (by weight)

10. STABILITY AND REACTIVITY

Stability:	Stable.
Hazardous Reactions:	Will not occur.
Hazardous Decomposition Products:	Under decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
Incompatible Materials:	This product may react with strong oxidizing agents.
Conditions to Avoid:	Freezing. Product may be unstable if frozen.

11. TOXICOLOGICAL INFORMATION

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
None	None	None	None

Hazardous components	Health Effects/Target Organs
None	None

12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended Method of Disposal:	Follow all local, state, federal and provincial regulations for disposal. This product is not a RCRA hazardous waste when discarded. Processing, use, or contamination of this product may change the hazard classification and waste management options.
Hazardous Waste Number:	None identified.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper Shipping Name:	Not regulated
Hazard Class or Division:	None
Identification Number:	None
Packing Group:	None

International Air Transportation (ICAO/IATA)

Proper Shipping Name:	Not regulated
Hazard Class or Division:	None
Identification Number:	None
Packing Group:	None

Water Transportation (IMO/IMDG)

Proper Shipping Name:	Not regulated
Hazard Class or Division:	None
Identification Number:	None
Packing Group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimus.
CERCLA/SARA Section 302 EHS:	None above reporting de minimus.
CERCLA/SARA Section 311/312:	None
CERCLA/SARA 313:	None above reporting de minimus.
California Proposition 65:	No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status:	Contains one of more components listed on the Non-Domestic Substances List. All other components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Record as required by Environmental Canada. They may be imported into Canadá in limited quantities. Please contact Regulatory Affairs for additional details.
WHMIS Hazard Class:	Not controlled

16. OTHER INFORMATION

This Safety Data Sheet contains changes from the previous version in sections: Reviewed SDS. Reissued with new date.

Hazard Rating:	Health: 1 Flammability: 0 Reactivity: 0
Date SDS Prepared:	February 14, 2013

GH6230
7 PAGES

Safety Data Sheet
6230-9-30
2-2-15

Section 1 - Product and Company Identification

Material Name	-	**Black Jack All-Weather Roof Cement**
Chemical Category	-	Mixture
Product Code	-	6230-9-30
Product Description	-	Black paste.
Product Use	-	Repair cracks, seams and holes in roofing materials.
Synonyms	-	Roof and Flashing cement
Manufacturer	-	Gardner-Gibson 4161 E. 7th Avenue Tampa, FL 33605 United States
Telephone		
Technical	-	813-248-2101 - Customer Service: 8 AM - 5 PM M-F Eastern Standard Time
Emergency	-	800-424-9300 - CHEMTREC
Emergency	-	703-527-3887 - CHEMTREC (Outside US)
Last Revision Date	-	2-2-2015

Section 2 - Hazards Identification

GHS HAZARDS AND PRECAUTIONS

SIGNAL WORD: WARNING!

Flammable liquid (paste) and Vapor. Contains Combustible Petroleum Distillates. Harmful or Fatal if swallowed. Keep away from heat, sparks, and open flame. Avoid prolonged breathing of vapor and use only in adequate ventilation. Repeated and prolonged overexposure to solvent vapor may cause brain and nervous system damage, respiratory tract irritation, dizziness, or loss of consciousness. May cause skin and eye irritation.

Prevention	Avoid breathing dust, fume, gas, mist, vapors and/or spray. Do not handle until all safety precautions have been read and understood. Keep away from flames and hot surfaces. - No smoking. Use personal protective equipment as required. Keep out of reach of children.
Response	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Wash with plenty of soap and water. IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
Storage/Disposal	Store in a closed container. Store in a well-ventilated place. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Physical Form	-	Liquid (PASTE)
Color	-	Black
Odor	-	Petroleum solvent odor.
Flash Point	-	105 F(40.5556 C)
OSHA HCS 2012	-	Flammable Liquids - Category 3, Skin Corrosion/Irritation - Category 2, Serious Eye Damage, Eye Irritation - Category 2A, Carcinogenicity - Category 1A
WHMIS	-	Class B - Flammable and Combustible Materials - Division 3, Class D - Poisonous and Infectious Materials - Division 2 - Subdivision A

- 

- R65, R25, R36/37/38, R45

GHS - Flammable Liquids - Category 3, Skin Corrosion/Irritation - Category 2, Serious Eye Damage, Eye Irritation - Category 2A, Carcinogenicity - Category 1A

Route Of Entry - Inhalation, Skin, Eye, Ingestion/Oral

Potential Health Effects

Inhalation

Acute (Immediate) - May cause irritation. Excessive breathing of high vapor concentration can cause possible unconsciousness and even asphyxiation.

Chronic (Delayed) - Refer to other information found in Section 11-Toxicology.

Skin

Acute (Immediate) - May cause irritation.

Chronic (Delayed) - Repeated and prolonged exposure to the skin may cause dermatitis.

Eye

Acute (Immediate) - May cause irritation.

Chronic (Delayed) - Repeated and prolonged exposure may cause irritation.

Ingestion

Acute (Immediate) - May be harmful or fatal if swallowed.

Chronic (Delayed) - Repeated and prolonged exposure may be harmful.

Carcinogenic Effects - This product or one of its ingredients present at 0.1% or more is listed as a carcinogen by NTP, IARC or OSHA. See Section 11 - Toxicological Information for more details.

Carcinogenic Effects			
	CAS	**IARC**	**NTP**
Asphalt	8052-42-4	Group 2B-Possible Carcinogen	Under Consideration

Section 3 - Composition/Information on Ingredients

Hazardous Components						
Chemical Name	**CAS**	**%(wt)**	**UN;EINECS**	**LD50/LC50**	**Classifications According to Regulation/Directive**	
Asphalt	8052-42-4	30% TO 40%	NA1999, 232-490-9	Ingestion/Oral-Rat LD50 · >5000 mg/kgInhalation-Rat LC50 · >94.4 mg/m³	**WHMIS:** Other Toxic Effects - D2A **UN GHS:** Carc. 2; Eye Irrit. 2A; Skin Irrit. 2 **EU DSD/DPD:**	
Mineral spirits	8052-41-3	8% TO 15%	232-489-3		**EU DSD/DPD:** Carc.Cat.2; R45 Muta.Cat.2; R46 Xn; R65	
Cellulose	9004-34-6	2% TO 6%	232-674-9	Ingestion/Oral-Rat LD50 · >5 g/kgInhalation-Rat LC50 · >5800 mg/m³ 4 Hour(s)Skin-Rabbit LD50 · >2 g/kg	**WHMIS:** Other Toxic Effects - D2B **UN GHS:** Eye Irrit. 2A; Skin Irrit. 2 **EU DSD/DPD:**	
Bentonite	1302-78-9	1% TO 5%	215-108-5	NDA	**WHMIS:** Other Toxic Effects - D2A **UN GHS:** STOT RE 2	
1,2,4-Trimethylbenzene	95-63-6	< 1%	202-436-9	Ingestion/Oral-Rat LD50 · 5 g/kgInhalation-Rat LC50 · 18000 mg/m³ 4 Hour(s)	**UN GHS:** Acute Tox. 4 (Inhalation); Aquatic Chronic 2; Flam. Liq. 3; Eye Irrit. 2A; Skin Irrit. 2; STOT RE 2; STOT SE 2 **EU DSD/DPD:** R10Xn; R20Xi; R36/37/38N; R51 R53	
Benzene, 1,3,5-trimethyl	108-67-8	< 1%	UN2325, 203-604-4		R10 Xi; R37 N; R51 R53	

Non-Hazardous Components						
Chemical Name	CAS	%(wt)	UN;EINECS	LD50/LC50	EU R & S Phrases	Other
Water	7732-18-5	35% TO 45%	231-791-2		NDA	

This product is an encapsulated mixture which reduces the likelihood of exposure to hazardous particulates. Airborne exposures to hazardous dusts or mists may be generated by spraying, sanding or grinding.

See Section 11 for Toxicological Information.

Section 4 - First Aid Measures

Inhalation - IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell. Move victim to fresh air. If breathing is difficult, give oxygen.

Skin - IF ON SKIN: Wash with plenty of soap and water. If irritation develops and persists, get medical attention.

Eye - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion - If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

Section 5 - Fire Fighting Measures

Extinguishing Media - LARGE FIRE: Water spray, fog or regular foam.
SMALL FIRES: Dry chemical, CO2, water spray or regular foam.

Unsuitable Extinguishing Media - Do not use direct stream of water.

Firefighting Procedures - Fight advanced or massive fires from safe distance or protected location. Avoid water in a straight hose stream as the stream will cause splatter and spread fire. If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and are ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release.

Unusual Fire and Explosion Hazards - Combustible liquid. May release irritating or toxic gases, fumes, or vapors.

Hazardous Combustion Products - Carbon monoxide, carbon dioxide, hydrocarbons.

Protection of Firefighters - Firefighters should wear self-contained breathing apparatus and full protective gear.

Flash Point - 105°F(40°C) CC (Closed Cup)

Explosion Limits

Upper - 6 %

Lower - .9 %

Autoignition Temperature - 450 °F(232°C)

Section 6 - Accidental Release Measures

Personal Precautions - Do not handle damaged containers or spilled material unless wearing appropriate protective clothing. Stay upwind and Ventilate the area before entry.

Emergency Procedures - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can without risk. Isolate the area and contain the spilled material. Persons not wearing the appropriate PPE should be removed from the area until the spill is cleaned up. Keep unauthorized personnel away.

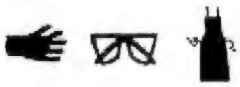
Environmental Precautions - Prevent entry into waterways, sewers, basements or confined areas.

Containment/Clean-up Measures	-	Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in suitable container. Do not use water to flush spill area. Use appropriate Personal Protective Equipment (PPE).
Prohibited Materials	-	Avoid contact with strong oxidizing agents.

Section 7 - Handling and Storage

Handling	-	KEEP OUT OF THE REACH OF CHILDREN! Keep away from heat and ignition sources – No Smoking. Use only with adequate ventilation.
Storage	-	Store in a well-ventilated place. Keep container tightly closed. Keep container/package tightly closed in a cool, well-ventilated place. No open flames, no sparks and no smoking.
Special Packaging Materials	-	No data available
Incompatible Materials or Ignition Sources	-	Avoid contact with strong oxidizing agents and acids.

Section 8 - Exposure Controls/Personal Protection

Personal Protective Equipment Pictograms	-	
Respiratory	-	In case of insufficient ventilation, wear suitable respiratory equipment. If listed exposure limits are expected to be exceeded, use approved respirtory protection suitable for the hazard.
Eye/Face	-	Wear ANSI approved safety glasses with side shields or safety goggles.
Hands	-	Wear chemical protective gloves made of Nitrile or Neoprene.
Skin/Body	-	Wear clothing that covers the skin to prevent skin exposure.
General Industrial Hygiene Considerations	-	Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Avoid breathing vapors.
Engineering Measures/Controls	-	Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Use precaution to protect building intake from fumes and vapors created outdoors.

Exposure Limits/Guidelines					
	Result	**ACGIH**	**Canada Ontario**	**OSHA**	**United States - California**
Cellulose (9004-34-6)	TWAs	10 mg/m3 TWA	10 mg/m3 TWAEV (paper fibre, total dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)	10 mg/m3 PEL (total dust); 5 mg/m3 PEL (respirable fraction)
mineral spirits (8052-41-3)	TWAs	100 ppm TWA	525 mg/m3 TWAEV	500 ppm TWA; 2900 mg/m3 TWA	100 ppm PEL; 525 mg/m3 PEL
Asphalt (8052-42-4)	TWAs	0.5 mg/m3 TWA (as benzene soluble aerosol, fume, inhalable fraction)	0.5 mg/m3 TWAEV (fume, inhalable, as benzene-soluble aerosol)	Not established	5 mg/m3 PEL (fume)

Exposure Control Notations

ACGIH

- Asphalt (8052-42-4):Carcinogens:A4 - Not Classifiable as a Human Carcinogen (fume, coal tar-free)

Key to abbreviations

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

Physical Form - Liquid
Appearance/Description - Thick black paste (semi-liquid)

Color: Black		**Odor:** Petroleum solvent odor.	
Taste: NDA		**Odor Threshold:** NDA	
Boiling Point:	300 to 400 F(148.8889 to 204.4444 C)	**Vapor Pressure:**	= 2 mmHg (torr) @ 68 F(20 C)
Melting Point:	NDA	**Vapor Density:**	= 1 Air=1
Specific Gravity/Relative Density:	= 1.046 Water=1	**Evaporation Rate:**	NDA
Density:	= 8.71 lbs/gal	**VOC (Wt.):**	= 1.66 lbs/gal
Bulk Density:	NDA	**VOC (Vol.):**	< 250 g/L
pH:	NDA	**Volatiles (Wt.):**	NDA
Water Solubility:	NDA	**Volatiles (Vol.):**	= 60 %
Solvent Solubility:	Yes	**Flash Point:**	>105° F(40°C)
Viscosity:	NDA	**Flash Point Test Type:**	CC (Closed Cup)
Coefficient of Water:	NDA	**Autoignition:**	450 F(232.2222 C)

Section 10 - Stability and Reactivity

Stability - Stable under normal temperatures and pressures.
Hazardous Polymerization - Hazardous polymerization will not occur.
Conditions to Avoid - Avoid contact with strong oxidizing agents and flame.
Incompatible Materials - Strong oxidizers and acids.
Hazardous Decomposition Products - Carbon monoxide, carbon dioxide and hydrocarbons.

Section 11 - Toxicological Information

Component Name	Concentration	CAS	Data
Water	35% TO 45%	7732-18-5	Acute Toxicity: ; orl-rat LD50:>90 mL/kg
Asphalt	30% TO 40%	8052-42-4	Acute Toxicity: ; orl-rat LD50:>5000 mg/kg; ihl-rat LC50:>94.4 mg/m3 Tumorigen/Carcinogen: ; skn-mus TD :69 gm/kg/43W-I; skn-mus TDLo:905gm/kg/2Y-I
Cellulose	2% TO 6%	9004-34-6	Acute Toxicity: ; orl-rat LD50:>5 gm/kg; ihl-rat LC50:>5800 mg/m3/4H; skn-rbt LD50:>2 gm/kg
Bentonite	1% TO 5%	1302-78-9	Acute Toxicity: ; orl-mus TDLo:14 gm/kg/7D-I
1,2,4-Trimethylbenzene	< 1%	95-63-6	Acute Toxicity: ; orl-rat LD50:5 gm/kg; ihl-rat LC50:18000 mg/m3/4H

Other Component Information - IARC has concluded that the following chemicals in this product are carcinogenic to humans (Group 1): silica, quartz. ACGIH has designated the following chemicals in this product as suspected human carcinogens (A2): silica, quartz. NTP has listed the following chemicals in this product as known human carcinogens: silica, quartz. Risk of cancer depends on duration and level of exposure to this product as a dust or aerosol mist.

Other Information - This product contains petroleum asphalt. Petroleum asphalt is not listed as a carcinogen by OSHA or NTP. The National Institute of Occupational Safety and Health (NIOSH), has concluded that at higher temperatures roofing asphalt fumes are a potential occupational carcinogen. If this product is heated or comes in contact with heated material, avoid breathing fumes. This product may contain small amounts of polycyclic aromatic hydrocarbons (PAH's) which are recognized carcinogens in humans and experimental animals. Mouse skin painting studies of roofing asphalt vapor concentrate have shown evidence of tumor formation associated with localized skin irritation in recent studies. Inhalation studies of high airborne concentrations of asphalt/bitumen fumes in rats and mice produced bronchitis, pneumonitis, and lung changes such as fibrosis and cell damage.

Section 12 - Ecological Information

Ecological Fate - No data available.
Persistence/Degradability - No data available.
Bioaccumulation Potential - No data available.
Mobility in Soil - No data available.

Section 13 - Disposal Considerations

Product - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transportation Information

DOT – Department of Transportation - Not Regulated when shipped in containers <119 gallons.

TDG Transportation Other Information: Not Restricted under General Exemption for small container packaging.
TDG - Canada Transportation of Dangerous Goods: Tars, Liquids; UN1999; Hazard Class: 3; Packing Group: III 1.33 Class 3, Flammable Liquids

IMO/IMDG –International Maritime Transport ▪ IMDG Code 2.3.2.5 - exempted from marking, labeling & testing of packages.

IATA - International Air Transport Association - TARS, LIQUID; UN1999; Hazard Class: 3; Packing Group: III.

Section 15 - Regulatory Information

SARA Hazard Classifications - Acute, Chronic
Risk & Safety Phrases - California PROP 65: Asphalt and Asphalt Fumes may contain detectable amounts of chemicals known to the State of California to cause cancer or reproductive harm. .

State Right To Know					
Component	CAS	MA	MN	NJ	PA
Water	7732-18-5	No	No	No	No
Asphalt	8052-42-4	Yes	Yes	Yes	Yes
mineral spirits	8052-41-3	Yes	Yes	Yes	Yes
Cellulose	9004-34-6	Yes	Yes	Yes	Yes
Bentonite	1302-78-9	No	No	No	No
1,2,4-Trimethylbenzene	95-63-6	Yes	Yes	Yes	Yes
Benzene, 1,3,5-trimethyl	108-67-8	Yes	No	No	No

Inventory			
Component	CAS	EU EINECS	TSCA
Water	7732-18-5	Yes	Yes
Asphalt	8052-42-4	Yes	Yes
mineral spirits	8052-41-3	Yes	Yes
Cellulose	9004-34-6	Yes	Yes
Bentonite	1302-78-9	Yes	Yes

Inventory			
Component	CAS	EU EINECS	TSCA
1,2,4-Trimethylbenzene	95-63-6	Yes	Yes
Benzene, 1,3,5-trimethyl	108-67-8	Yes	Yes

United States

Environment

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Cellulose	9004-34-6	2% TO 6%	Not Listed
• Asphalt	8052-42-4	30% TO 40%	Not Listed
• 1,2,4-Trimethylbenzene	95-63-6	< 1%	1.0 % de minimis concentration
• Bentonite	1302-78-9	1% TO 5%	Not Listed
• Water	7732-18-5	35% TO 45%	Not Listed
• mineral spirits	8052-41-3	8% TO 15%	Not Listed
• Benzene, 1,3,5-trimethyl	108-67-8	< 1%	Not Listed

Section 16 - Other Information

Last Revision Date - 02/02/2015

Prepared By - GG Inc.

Disclaimer/Statement of Liability - This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to verify the suitability and completeness of such information for particular use. Gardner-Gibson does not accept liability for any loss or damage that may occur from the use of this information.

NFPA

Diesel Fuel 18 pgs

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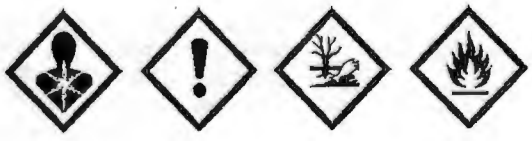
1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name	:	**Diesel (ULSD/Gasoil)**
Recommended Use / Restrictions of Use	:	Fuel for on-road diesel-powered engines. Fuel for use in off-road diesel engines, boilers, gas turbines and other combustion equipment.
Supplier	:	**Shell Eastern Trading (PTE) Ltd** 9 North Buona Vista Drive, #07-01, Tower 1, The Metropolis Singapore 138588 Singapore
Telephone	:	+65-6384 8000
Emergency Telephone Number	:	+44 (0) 151 350 4595

2. HAZARDS IDENTIFICATION

GHS Classification	:	Flammable liquids, Category 3 Aspiration hazard, Category 1 Acute toxicity, Category 4, Inhalation Skin corrosion/irritation, Category 2 Carcinogenicity, Category 2 Specific target organ toxicity - repeated exposure, Category 2, Blood., Thymus., Liver Hazardous to the aquatic environment - Long-term Hazard, Category 2 Acute hazards to the aquatic environment, Category 2
GHS Label Elements Symbol(s)	:	
Signal Words	:	Danger
Hazard Statement	:	PHYSICAL HAZARDS: H226: Flammable liquid and vapour. HEALTH HAZARDS:

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H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H332: Harmful if inhaled.
H351: Suspected of causing cancer.
H373: May cause damage to organs or organ systems through prolonged or repeated exposure.

ENVIRONMENTAL HAZARDS:
H411: Toxic to aquatic life with long lasting effects.
H401: Toxic to aquatic life.

GHS Precautionary Statements

Prevention : P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response : P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.

Disposal: : P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other Hazards which do not result in classification : Vapour in the headspace of tanks and containers may ignite and explode at temperatures exceeding auto-ignition temperature, where vapour concentrations are within the flammability range.
May ignite on surfaces at temperatures above auto-ignition temperature.
This material is a static accumulator. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

Additional Information : This product is intended for use in closed systems only.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description : Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon

numbers predominantly in the C9 to C25 range. May also contain several additives at <0.1% v/v each. May contain cetane improver (Ethyl Hexyl Nitrate) at <0.2% v/v.

May contain catalytically cracked oils in which polycyclic aromatic compounds, mainly 3-ring but some 4- to 6-ring species are present.

Classification of components according to GHS

Chemical Identity	Synonyms	CAS	Hazard Class (category)	Hazard Statement	Conc.
Fuels, diesel	Fuels, diesel	68334-30-5	Flam. Liq., 3; Asp. Tox., 1; Acute Tox., 4; Skin Corr., 2; Carc., 2; STOT RE, 2; Aquatic Chronic, 2; Aquatic Acute, 2;	H226; H304; H332; H315; H351; H373; H411; H401;	60.00 - 100.00 %
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	848301-67-7	Asp. Tox., 1; Flam. Liq., 4;	H304; H227;	0.00 - 30.00 %
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	848301-66-6	Asp. Tox., 1; Flam. Liq., 3;	H304; H226;	0.00 - 10.00 %

Additional Information : Dyes and markers can be used to indicate tax status and prevent fraud. Contains Cumene, CAS# 98-82-8 Contains Naphthalene, CAS # 91-20-3.

Refer to Ch 16 for full text of H phrases.

4. FIRST-AID MEASURES

Inhalation : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Skin Contact : Remove contaminated clothing. Immediately flush skin with

		large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing. Give nothing by mouth.
Most Important Symptoms/Effects, Acute & Delayed	:	If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
Immediate medical attention, special treatment	:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific hazards arising from Chemicals	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Oxides of sulphur. Unidentified organic and inorganic compounds. Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. Flammable vapours may be present even at temperatures below the flash point. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Protective Equipment & Precautions for Fire Fighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).
Additional Advice	:	Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. Take precautionary measures against static discharges.

Personal Precautions, Protective Equipment and Emergency Procedures	:	Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter.
Environmental Precautions	:	Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Methods and Material for Containment and Cleaning Up	:	Take precautionary measures against static discharges. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate

absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.

Additional Advice : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

7. HANDLING AND STORAGE

General Precautions : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Prevent spillages. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Never siphon by mouth. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse.
Maintenance and Fuelling Activities - Avoid inhalation of vapours and contact with skin.

Precautions for Safe Handling : Avoid inhaling vapour and/or mists. Avoid prolonged or repeated contact with skin. When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Earth all equipment. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Conditions for Safe Storage : Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Vapours from tanks should not be released to

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		atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Keep container tightly closed and in a cool, well-ventilated place. Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product. Keep in a bunded area with a sealed (low permeability) floor, to provide containment against spillage. Prevent ingress of water.
Product Transfer	:	Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Contamination resulting from product transfer may give rise to light hydrocarbon vapour in the headspace of tanks that have previously contained gasoline. This vapour may explode if there is a source of ignition. Partly filled containers present a greater hazard than those that are full, therefore handling, transfer and sampling activities need special care. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1 m/s until fill pipe submerged to twice its diameter, then <= 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.
Recommended Materials	:	For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE) and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use

		amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
Unsuitable Materials	:	Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
Container Advice	:	Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.
Other Advice	:	Ensure that all local regulations regarding handling and storage facilities are followed. See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity). CENELEC CLC/TR 50404 (Electrostatics – Code of practice for the avoidance of hazards due to static electricity).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Naphthalene	ACGIH	TWA	10 ppm		
	ACGIH	STEL	15 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	10 ppm	52 mg/m3	
	SG OEL	STEL	15 ppm	79 mg/m3	

Fuels, diesel	ACGIH	SKIN_DES(Inhalable fraction and vapor.)			Can be absorbed through the skin.as total hydrocarbons
	ACGIH	TWA(Inhalable fraction and vapor.)		100 mg/m3	as total hydrocarbons
Cumene	ACGIH	TWA	50 ppm		
	SG OEL	TWA	50 ppm	246 mg/m3	

Additional Information : Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

Biological Exposure Index (BEI)

Material	Determinant	Sampling Time	BEI	Reference
Naphthalene	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis	Sampling time: End of shift.		ACGIH BEL (02 2013)

Appropriate Engineering Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping. Define procedures for safe handling and maintenance of controls.

		Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Firewater monitors and deluge systems are recommended. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Individual Protection Measures	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough

		time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable.
Eye Protection	:	Chemical splash goggles (chemical monogoggles). If a local risk assessment deems it so, then chemical splash goggles may not be required and safety glasses may provide adequate eye protection.
Protective Clothing	:	Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
Thermal Hazards	:	Not applicable.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/ Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Environmental Exposure Controls	:	Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Information on accidental release measures are to be found in section 6. Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Colourless to yellowish. Liquid.
Odour	:	May contain a reodorant
Odour threshold	:	Data not available
pH	:	Not applicable
Initial Boiling Point and Boiling Range	:	170 - 390 °C / 338 - 734 °F
Pour point	:	<= 6 °C / 43 °F
Flash point	:	> 55 °C / 131 °F
Upper / lower Flammability or	:	1 - 6 %(V)

Explosion limits		
Auto-ignition temperature	:	> 220 °C / 428 °F
Vapour pressure	:	1 hPa at 20 °C / 68 °F
Relative Density	:	Data not available
Density	:	0.8 - 0.89 g/cm3 at 15 °C / 59 °F
Water solubility	:	Data not available
Solubility in other solvents	:	Data not available
n-octanol/water partition coefficient (log Pow)	:	3 - 6
Dynamic viscosity	:	Data not available
Kinematic viscosity	:	1.5 - 6 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	Data not available
Electrical conductivity	:	Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.
Evaporation rate (nBuAc=1)	:	Data not available
Decomposition Temperature	:	Data not available
Flammability	:	Not applicable.

10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal use conditions.
Possibility of Hazardous Reactions	:	No hazardous reaction is expected when handled and stored according to provisions.
Conditions to Avoid	:	Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Sensitivity to Static Discharge	:	Yes, in certain circumstances product can ignite due to static electricity.

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11. TOXICOLOGICAL INFORMATION

Information on Toxicological effects

Basis for Assessment : Information given is based on product data, a knowledge of the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Likely Routes of Exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute Oral Toxicity : Low toxicity: LD50 > 5000 mg/kg , Rat

Acute Dermal Toxicity : Low toxicity: LD50 >2000 mg/kg , Rabbit

Acute Inhalation Toxicity : Harmful if inhaled. LC50 > 1.0 - <= 5.0 mg/l , 4 h, Rat
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Skin corrosion/irritation : Irritating to skin.

Serious eye damage/irritation : Expected to be slightly irritating.

Respiratory irritation : Inhalation of vapours or mists may cause irritation to the respiratory system.

Respiratory or skin sensitisation : Not expected to be a sensitiser.

Aspiration Hazard : Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Germ cell mutagenicity : Positive in in-vitro, but negative in in-vivo mutagenicity assays.

Carcinogenicity : Limited evidence of carcinogenic effect.
Repeated skin contact has resulted in irritation and skin cancer in animals.

Material	:	Carcinogenicity Classification
Naphthalene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Naphthalene	:	NTP: Reasonably Anticipated to be a Human Carcinogen.
Naphthalene	:	IARC 2B: Possibly carcinogenic to humans.
Naphthalene	:	GHS / CLP: Carcinogenicity Category 2

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Fuels, diesel	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Fuels, diesel	:	GHS / CLP: Carcinogenicity Category 2
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	:	GHS / CLP: No carcinogenicity classification
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	:	GHS / CLP: No carcinogenicity classification
Cumene	:	IARC 2B: Possibly carcinogenic to humans.
Cumene	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity : Not expected to impair fertility. Not expected to be a developmental toxicant.

Specific target organ toxicity - single exposure : Not classified.

Specific target organ toxicity - repeated exposure : May cause damage to organs or organ systems through prolonged or repeated exposure. Blood. Thymus. Liver.

Additional Information : Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for Assessment : Information given is based on a knowledge of the components and the ecotoxicology of similar products. Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Acute Toxicity : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.

Fish : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l

Aquatic crustacea : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l

Algae/aquatic plants : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l

Microorganisms : Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

Chronic Toxicity : NOEC/NOEL expected to be > 0.01 - <= 0.1 mg/l (based on

Fish

		modeled data)
Aquatic crustacea	:	NOEC/NOEL expected to be > 0.1 - <= 1.0 mg/l (based on modeled data)
Mobility	:	Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. If product enters soil, one or more constituents will be mobile and may contaminate groundwater. Large volumes may penetrate soil and could contaminate groundwater. Floats on water.
Persistence/degradability	:	Major constituents are inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.
Bioaccumulative Potential	:	Contains constituents with the potential to bioaccumulate. Log Kow > =4
Other Adverse Effects	:	Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Container Disposal	:	Send to drum recoverer or metal reclaimer. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Do not pollute the soil, water or environment with the waste container. Comply with any local recovery or waste disposal regulations.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be in compliance.

14. TRANSPORT INFORMATION

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Land (as per ADR classification): Regulated

Class	:	3
Packing group	:	III
Hazard indentification no.	:	30
UN number	:	1202
Danger label (primary risk)	:	3
Proper shipping name	:	DIESEL FUEL
Environmentally Hazardous	:	Yes

IMDG

Identification number	UN 1202
Proper shipping name	DIESEL FUEL
Class / Division	3
Packing group	III
Environmental hazards:	Yes

IATA (Country variations may apply)

UN number	:	1202
Proper shipping name	:	Diesel fuel
Class / Division	:	3
Packing group	:	III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution Category	:	Not applicable.
Ship Type	:	Not applicable.
Product Name	:	Not applicable.
Special Precaution	:	Not applicable.
Additional Information	:	MARPOL Annex 1 rules apply for bulk shipments by sea.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Local Regulations		
Workplace Safety and Health Act & Workplace Safety and Health (General Provision) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Environmental Protection and Management Act and Environmental Protection and Management	:	This product is subject to the requirement in the Act/ Regulations.

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(Hazardous Substances) Regulations Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Classification triggering components	:	Contains fuels, diesel.
Other information	:	IARC has classified diesel exhaust emissions as a Class 1 carcinogen - carcinogenic to humans. Steps should be taken to prevent personal exposure to diesel exhaust emissions.

16. OTHER INFORMATION

Hazard Statement

H226	Flammable liquid and vapour.
H227	Combustible liquid.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to organs or organ systems through prolonged or repeated exposure.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Additional Information	:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
SDS Version Number	:	1.1
SDS Effective Date	:	10.03.2014
SDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
Uses and Restrictions	:	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier. This product is not to be used as a solvent or cleaning agent;

Safety Data Sheet

for lighting or brightening fires; as a skin cleanser.

SDS Distribution : The information in this document should be made available to all who may handle the product.

Key/Legend to Abbrevations used in this SDS : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

Flam. Liq.	Flammable liquids
Asp. Tox.	Aspiration hazard
Acute Tox.	Acute toxicity
Skin Corr.	Skin corrosion/irritation
Carc.	Carcinogenicity
STOT RE	Specific target organ toxicity - repeated exposure

Key Literature References : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

GH 2172-900 5pgs

SAFETY DATA SHEET

SECTION 1 – COMPANY and PRODUCT IDENTIFICATION

MANUFACTURER
GARDNER-GIBSON CORPORATION
4161 East 7th Avenue
Tampa, FL 33605

EMERGENCY TELEPHONE NUMBER
1-800-424-9300 CHEMTREC

Product Information
813-248-2101
gardner-gibson.com

Product Class
Acrylic Latex Sealant used in building construction.

Product Code Number
6439-9-66

Trade Name
Black Jack Speed-Fill Blacktop Filler - Black

SECTION 2 – HAZARDS IDENTIFICATION

Product Classification: No need for classification according to GHS criteria.

Effects of acute toxicity:
EYES: Direct contact may cause irritation.
SKIN: May cause irritation to sensitive skin or open wounds.
INHALATION: May cause irritation to respiratory passages.
INGESTION: May cause nausea.

Precautions:
Wear suitable protective clothing, gloves and eye protection.
If the product adheres to exposed skin, irritation may occur when the product dries.
Use with local exhaust ventilation.
Do not take internally. Wash hands before eating or drinking.

SECTION 3 – COMPOSITION / INFORMATION on INGREDIENTS

INGREDIENT	Content (By Weight)	TLV PPM	PEL - TWA PPM
Diisononyl Phthalate (DINP) **CAS # 28553-12-0**	3.0 - 5.0%	N.E.	N.E.
Mineral Spirits (Stoddard solvent) **CAS # 8052-41-3**	0.5 - 1.0%	100	100
All other ingredients in this waterborne product are trade secret.	94.0 - 96.5%	N.A.	N.A.

There are no ingredients in this product of unknown acute toxicity.

N.E. = Not Established **N.A. = Not Applicable**

SECTION 4 – FIRST-AID MEASURES

Inhalation: If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. If signs/symptoms of difficulty in breathing continue, get immediate medical attention.

Skin: Rinse skin immediately with plenty of clean water for 5 to 10 minutes. Remove contaminated clothing. If skin irritation occurs get medical advice/attention.

Eye(s): Rinse cautiously with water for several minutes. Remove contact lenses if present and if it is easy to do so. Continue rinsing. If eye irritation persists get medical advice/attention.

Ingestion: If swallowed, do not induce vomiting. If conscious, give 2 to 3 glasses of water and seek medical advice/attention immediately.

SECTION 5 – FIRE-FIGHTING MEASURES

Extinguishing Media: Carbon dioxide, dry chemical, foam, or water spray

Unusual Fire and Explosion Hazards: None known

Special Fire Fighting Procedures: Water can be used to cool fire-exposed containers. Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled: Observe all personal protective equipment recommendations described in Section 8. Wipe up or scrape up spilled material and contain for disposal. Final cleaning may require use of hot water and/or detergents. Dispose of saturated absorbent or cleaning materials appropriately.

SECTION 7 – HANDLING and STORAGE

Precautions for safe handling: Keep away from extreme heat. Do not get in eyes, on skin, on clothing. Do not swallow product. Wash thoroughly after handling. Use with adequate ventilation.

Conditions for safe storage: Store in a cool, dry place in the original container. Keep container closed when not in use. Store the product away from strong oxidizing chemicals. Avoid extreme heat. Store above 7 °C (45 °F). Product will freeze below 0 °C (32 °F).

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection: Use with adequate ventilation.
Skin Protection: Chemical resistant gloves are recommended for prolonged exposure.
Eye Protection: Wear safety glasses with side shields.
OTHER PROTECTIVE EQUIPMENT: None required.

SECTION 9 – PHYSICAL and CHEMICAL PROPERTIES

Appearance (Physical state, color):	Thick fluid paste, black
Odor:	Mild, acrylic-like
Odor Threshold:	No information is available.
pH:	7.5 – 8.5
Melting point:	No data is available.
Initial Boiling Point & Boiling Range:	100 °C to 244 °C (212 °F to 471 °F)
Flash Point:	>94 °C (>201 °F)
Evaporation Rate:	Slower than Ether
Flammability:	Nonflammable
Upper/Lower Flammability Limits:	No data is available.
Vapor Pressure:	17.5 mm Hg @ 20 °C (68 °F)
Vapor Density:	Heavier than air
Density:	1.68 g/cm^3 (14.0 Lbs/gal) 21 °C (70 °F)
Solubility (in water):	Dispersible in water
Partition coefficient (n-octanol/water):	No data is available.
Auto-ignition temperature:	No data is available.
Decomposition temperature:	>250 °C (482 °F)
Viscosity (Brookfield RV, 5 rpm):	300,000 cP ±90,000 @ 21 °C (70 °F)

SECTION 10 – STABILITY and REACTIVITY

Reactivity: No hazardous reactions if stored and handled as prescribed.

Chemical Stability: The product is stable if stored and handled as prescribed.

Hazardous decomposition products: Carbon dioxide, carbon monoxide, and hydrocarbons.

Hazardous polymerization: Will not occur. The product is chemically stable.

SECTION 11 – TOXICOLOGICAL INFORMATION

Primary routes of exposure: Routes of entry for the product into the human body are accidental ingestion, accidental eye contact, and prolonged skin contact. Inhalation of the vapor released from the product as it dries is dependent upon the absence of proper ventilation during use of the product.

Acute Toxicity/Effects:
EYES: Direct contact may cause irritation.
SKIN: May cause irritation to sensitive skin or open wounds.
INHALATION: May cause irritation to respiratory passages.
INGESTION: May cause nausea/gastrointestinal distress.

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

SECTION 11 – TOXICOLOGICAL INFORMATION (continued from page 3)

No human toxicological studies (Oral, Inhalation or Dermal) have been conducted on this compounded product.

No animal toxicological studies (Oral, Inhalation or Dermal) have been conducted on this compounded product.

Chronic Toxicity/Effects:
EYES: No data available.
SKIN: No data available.
INHALATION: No data available.
INGESTION: No data available.

SECTION 12 – ECOLOGICAL INFORMATION

Ecological Fate:	* No data available.
Persistence/Degradability:	* No data available.
Bioaccumulation Potential:	* No data available.
Mobility in Soil:	* No data available.

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of unused product and/or empty containers in accordance with local, regional, national, and/or international regulations.
Do not discharge into drains, surface waters, groundwater, or open ground/soil.

SECTION 14 – TRANSPORT INFORMATION

DOT Proper Shipping Name: Not Regulated by D.O.T. **DOT Hazard Class:** None
DOT UN/NA Number: None **Packing Group:** None

IMO/IMDG – International Maritime Transport Shipping Name: Not Regulated.
IATA – International Air Transportation Association: Not Regulated.

Do not transport this product on passenger seats or inside the passenger compartment of any vehicle. Transport product in the cargo area of the vehicle and secure it on and under protective cloths or plastic wrap to prevent damage due to accidental spills.

SECTION 15 – REGULATORY INFORMATION

SARA Title III – No substances are contained in this product subject to the reporting requirements of EPCRA Section 313 of the Super Fund Amendments and Reauthorization Act, 40 CFR Part 372.
TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.
California Proposition 65 Chemical Warning (California Health and Safety Code #25249.5 et seq): This product contains chemicals known to the state of California to cause cancer, birth defects or reproductive harm.

SECTION 16 – OTHER INFORMATION

Hazardous Materials Identification System (HMIS)

Health	Flammability	Physical Hazard	Personal Protection Equipment (PPE)
1	0	0	B – Safety glasses and gloves

Legend: 0 = Insignificant **1** = Slight **2** = Moderate **3** = High

Other Precautions: Keep out of the reach of children.
Protect from freezing.

Disclaimer/Statement of Liability:
This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to verify the suitability and completeness of such information for a particular use. Gardner-Gibson does not accept liability for any loss or damage that may occur from the use of this information.

Prepared by: Morton Jones
3-24-15
Product # 6439-9-66

HR15811 7pages

SAFETY DATA SHEET

1. Identification

Product identifier **Hercules Megaloc**

Other means of identification

Product code 7305E

Synonyms Part Numbers: 15802, 15804, 15806, 15808, 15811, 15814, 15816, 15818, 15821

Recommended use Pipe thread sealant.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name HCC Holdings, Inc. an Oatey Affiliate

Address 4700 West 160th Street
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Petroleum-based Lubricating Oil	64741-88-4	30-60
Kaolin	1332-58-7	10-30
Talc	14807-96-6	10-30
Magnesium carbonate	546-93-0	1-10
Poly (P-phenylenediamine terephthalamide)	26125-61-1	1-5
Titanium Dioxide	13463-67-7	1-5
Silica, amorphous, fumed	112945-52-5	0.5-1.5

Crystalline silica (Quartz)	14808-60-7	<1

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Indication of immediate medical attention and special treatment needed Treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Avoid prolonged exposure. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Kaolin (CAS 1332-58-7)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Magnesium carbonate (CAS 546-93-0)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
Petroleum-based Lubricating Oil (CAS 64741-88-4)	PEL	5 mg/m3	Mist.
		2000 mg/m3	
		500 ppm	
Titanium Dioxide (CAS 13463-67-7)	PEL	15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.3 mg/m3	Total dust.
		0.1 mg/m3	Respirable.
Talc (CAS 14807-96-6)	TWA	0.3 mg/m3	Total dust.
		0.1 mg/m3	Respirable.
		20 mppcf	
		2.4 mppcf	Respirable.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
Kaolin (CAS 1332-58-7)	TWA	2 mg/m3	Respirable fraction.
Petroleum-based Lubricating Oil (CAS 64741-88-4)	TWA	5 mg/m3	Inhalable fraction.
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Respirable fraction.
Titanium Dioxide (CAS 13463-67-7)	TWA	10 mg/m3	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
Kaolin (CAS 1332-58-7)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total
Magnesium carbonate (CAS 546-93-0)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total
Petroleum-based Lubricating Oil (CAS 64741-88-4)	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Respirable.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid paste.
Color	Blue.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	> 212.0 °F (> 100.0 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.2 g/cm3
Solubility(ies)	
Solubility (water)	Slightly Soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	30000 cP
Other information	
VOC (Weight %)	4 g/l

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Acids.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.

Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Information on toxicological effects

Acute toxicity	Not available.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)

IARC Monographs. Overall Evaluation of Carcinogenicity

Crystalline silica (Quartz) (CAS 14808-60-7)	1 Carcinogenic to humans.
Petroleum-based Lubricating Oil (CAS 64741-88-4)	3 Not classifiable as to carcinogenicity to humans.
Titanium Dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Crystalline silica (Quartz) (CAS 14808-60-7)	Known To Be Human Carcinogen.
Petroleum-based Lubricating Oil (CAS 64741-88-4)	Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

15. Regulatory information

US federal regulations

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Crystalline silica (Quartz) (CAS 14808-60-7)
Kaolin (CAS 1332-58-7)
Magnesium carbonate (CAS 546-93-0)
Petroleum-based Lubricating Oil (CAS 64741-88-4)
Talc (CAS 14807-96-6)
Titanium Dioxide (CAS 13463-67-7)

US. New Jersey Worker and Community Right-to-Know Act

Crystalline silica (Quartz) (CAS 14808-60-7)
Kaolin (CAS 1332-58-7)
Magnesium carbonate (CAS 546-93-0)

Talc (CAS 14807-96-6)
Titanium Dioxide (CAS 13463-67-7)

US. Pennsylvania Worker and Community Right-to-Know Law

Crystalline silica (Quartz) (CAS 14808-60-7)
Kaolin (CAS 1332-58-7)
Talc (CAS 14807-96-6)
Titanium Dioxide (CAS 13463-67-7)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Crystalline silica (Quartz) (CAS 14808-60-7)
Di-"isononyl" phthalate (CAS 28553-12-0)
Titanium Dioxide (CAS 13463-67-7)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

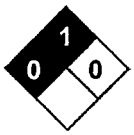
Issue date 05-February-2015

Revision date -

Version # 01

HMIS® ratings
Health: 0
Flammability: 1
Physical hazard: 0

NFPA ratings



Disclaimer

HCC Holdings Inc. an Oatey Affiliate cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

HF C181 17 pgs

CARLISLE HVAC PRODUCTS / HARDCAST DUCT SEALANTS & INSULATION ADHESIVES / DYNAIR DUCT HARDWARE & NEXUS FLANGE

Safety Data Sheet

Material Name: VG 181 Gray

Product #: 305057-1 gal
305058-2 gal
305056-11 oz

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
VG 181 Gray

Synonyms
Sealant

Chemical Family
Water based mastic

Product Use
Duct sealant

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 1 (body, central nervous system, systemic toxicity, eyes)
Specific Target Organ Toxicity - Repeated Exposure - Category 1 (eyes,central nervous system)

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
May damage fertility or the unborn child
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure

Precautionary Statement(s)

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapours/spray
Wash thoroughly after handling
Do not eat, drink or smoke when using this product

Response
If exposed: Call a POISON CENTER or doctor/physician
Get medical advice/attention if you feel unwell
Specific treatment (see label)

Storage
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Trade Secret	De-foaming agent	0.1-1
Trade Secret	Nonylphenol polyethylene glycol ether	0.1-1
Mixture	Polymer, ethyl acrylate and methacrylic acid	0.1-1
Mixture	Acrylic polymer	0.1-1
Mixture	Polycarboxylate salt	0.1-1
107-21-1	Ethylene glycol	0.1-1
Mixture	Fuller's earth	0.1-1
1317-65-3	Limestone	15-40

67-56-1	Methanol	1-5
Mixture	4,4-Dimethyloxazolidine	0.1-1
7664-41-7	Ammonia	0.1-1
Trade Secret	Aluminium trihydroxide	10-30
Trade Secret	Polyester fibers	0.1-1

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
If exposed or concerned: Call a POISON CENTER or doctor/physician.

Inhalation
Remove person to fresh air and keep comfortable for breathing. Get medical attention, if needed.

Skin
Wash exposed skin with soap and water. Remove contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.

Eyes
Flush eyes with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion
Do NOT induce vomiting. If swallowed, get medical attention.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
Causes damage to central nervous system, body, eyes, systemic toxicity.

Delayed
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure: eyes, central nervous system.

Note to Physicians
Contains. ethylene glycol, methanol

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media
None reported.

Special Hazards Arising from the Chemical
Slight fire hazard. Sealed containers may rupture or explode if exposed to heat.

Hazardous Combustion Products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Advice for firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. Do not inhale any material or combustion by-products.

Fire Fighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Absorb with earth, sand or other non-combustible material and transfer to container. Dike for later disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
This product contains crystalline silica, which is a known carcinogen: Do not grind or sand. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up
Store in a well-ventilated place. Store above 0 C. Store below 45 C. When not in use, keep containers tightly closed. Do not cut, puncture, or weld on or near this container. Keep away from incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Ethylene glycol	107-21-1	
ACGIH:	100 mg/m3 Ceiling aerosol only	
Europe:	20 ppm TWA; 52 mg/m3 TWA	40 ppm STEL; 104 mg/m3 STEL
	Possibility of significant uptake through the skin	
Mexico:	100 mg/m3 Ceiling aerosol	
Silica, crystalline	14808-60-7	
ACGIH:	0.025 mg/m3 TWA respirable fraction	
NIOSH:	0.05 mg/m3 TWA respirable dust	50 mg/m3 IDLH respirable dust
OSHA (US):	((30)/(%SiO2 + 2) mg/m3 TWA) total dust; ((250)/(%SiO2 + 5) mppcf TWA) respirable fraction; ((10)/(%SiO2 + 2) mg/m3 TWA) respirable fraction	
Mexico:	0.1 mg/m3 TWA LMPE-PPT respirable fraction	
Limestone	1317-65-3	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]
Methanol	67-56-1	
ACGIH:	200 ppm TWA	250 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route	
NIOSH:	200 ppm TWA; 260 mg/m3 TWA	250 ppm STEL; 325 mg/m3 STEL
	Potential for dermal absorption	
	6000 ppm IDLH	
Europe:	200 ppm TWA; 260 mg/m3 TWA	

	Possibility of significant uptake through the skin	
OSHA (US):	200 ppm TWA; 260 mg/m3 TWA	
Mexico:	200 ppm TWA LMPE-PPT; 260 mg/m3 TWA LMPE-PPT	
	250 ppm STEL [LMPE-CT]; 310 mg/m3 STEL [LMPE-CT]	
	Skin - potential for cutaneous absorption	
Ammonia	7664-41-7	
ACGIH:	25 ppm TWA	35 ppm STEL
NIOSH:	25 ppm TWA; 18 mg/m3 TWA	35 ppm STEL; 27 mg/m3 STEL
	300 ppm IDLH	
Europe:	20 ppm TWA; 14 mg/m3 TWA	50 ppm STEL; 36 mg/m3 STEL
OSHA (US):	50 ppm TWA; 35 mg/m3 TWA	
Mexico:	25 ppm TWA LMPE-PPT; 18 mg/m3 TWA LMPE-PPT	
	35 ppm STEL [LMPE-CT]; 27 mg/m3 STEL [LMPE-CT]	

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Provide adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Glove Recommendations
Wear protective gloves. Recommended material: Hycron(R), neoprene, nitrile.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	thick gray paste	**Physical State**	solid
Odor	Slight,ammonia	**Color**	gray
Odor Threshold	Not available	**pH**	8 - 9
Melting Point	Not available	**Boiling Point**	212 °F
Freezing point	Not available	**Evaporation Rate**	24 - 28 % volatile
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	17 mmHg (@ 20 °C)
Vapor Density (air=1)	<1	**Specific Gravity (water=1)**	Not available
Water Solubility	soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	thixotropic (@ 77 °F)	**Solubility (Other)**	Not available
Density	1.39 (relative)	**VOC**	38 g/L (SCAQMD calculation method)

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials
strong acids, strong oxidizing agents

Hazardous decomposition products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
May cause adverse effects on the central nervous system.

Skin Contact
May cause mild skin irritation.

Eye Contact
May cause mild eye irritation.

Ingestion
Methanol can produce blindness with onset of symptoms being delayed for 18-24 hours.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Ethylene-vinyl acetate copolymer (Trade Secret)
Oral LD50 Rat >2000 mg/kg

Epoxidized soybean oil (Trade Secret)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >20 mL/kg

De-foaming agent (Trade Secret)
Oral LD50 >2000 mg/kg

Nonylphenol polyethylene glycol ether (Trade Secret)
Oral LD50 Rat 2780 mg/kg
Chlorinated paraffins (Trade Secret)
Oral LD50 Rat >4000 mg/kg

Polymer, ethyl acrylate and methacrylic acid (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg

Acrylic polymer (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg

Polycarboxylate salt (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg

Ethylene glycol (107-21-1)
Oral LD50 Rat 4700 mg/kg
Dermal LD50 Rat 10600 mg/kg
Inhalation LC50 Rat >200 mg/m3 vapor 4 hr

Silica, crystalline (14808-60-7)
Oral LD50 Rat 500 mg/kg

Limestone (1317-65-3)
Oral LD50 Rat 6450 mg/kg

Methanol (67-56-1)
Oral LD50 Rat 6200 mg/kg
Inhalation LC50 Rat 22500 ppm 8 h

4,4-Dimethyloxazolidine (Mixture)
Oral LD50 Rat 1037 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat 1.1 mg/L 4 hr

Ammonia (7664-41-7)
Oral LD50 Rat 350 mg/kg
Inhalation LC50 Rat 2000 ppm 4 hr

Aluminium trihydroxide (Trade Secret)
Oral LD50 Rat >5000 mg/kg

Immediate Effects
Causes damage to central nervous system, body, eyes, systemic toxicity.

Delayed Effects
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure: eyes, central nervous system.

Irritation/Corrosivity Data
May cause mild skin irritation. May cause mild eye irritation.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

Chlorinated paraffins	Trade Secret

IARC:	Monograph 48 [1990] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3B (could be carcinogenic for man)
OSHA:	Present
Ethylene glycol	107-21-1
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
Silica, crystalline	14808-60-7
ACGIH:	A2 - Suspected Human Carcinogen
IARC:	Monograph 100C [2012]; Monograph 68 [1997] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen (respirable size)
DFG:	Category 1 (causes cancer in man, alveola fraction)
OSHA:	Present (respirable size)

Germ Cell Mutagenicity
No data available.

Reproductive Toxicity
May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
central nervous system, body, systemic toxicity, eyes

Specific Target Organ Toxicity - Repeated Exposure
central nervous system, eyes

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
No additional information available.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Avoid release to the environment.

Component Analysis - Aquatic Toxicity	
Ethylene-vinyl acetate copolymer	Trade Secret
Fish:	LC50 96 hr Cyprinus carpio >1000 mg/kg
Epoxidized soybean oil	Trade Secret
Fish:	LC50 48 hr Fish 900 mg/L
Algae:	EC50 72 h Desmodesmus subspicatus 8 mg/L IUCLID
Invertebrate:	EC50 24 hr Daphnia >100 mg/L
Chlorinated paraffins	Trade Secret
Fish:	LC50 96 h Lepomis macrochirus >300 mg/L [static]; LC50 96 h Oncorhynchus mykiss >0.0109 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 94.5 - 271 mg/L [static]; LC50 96 h Lepomis macrochirus >0.1 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]
Invertebrate:	EC50 48 hr Daphnia magna 0.0059 mg/L
Polymer, ethyl acrylate and methacrylic acid	Mixture
Fish:	LC50 96 hr Pimephales promelas >1000 mg/L
Invertebrate:	EC50 48 hr Daphnia magna >1000 mg/L
Ethylene glycol	107-21-1
Fish:	LC50 96 h Oncorhynchus mykiss 41000 mg/L; LC50 96 h Oncorhynchus mykiss 14 - 18 mL/L [static]; LC50 96 h Lepomis macrochirus 27540 mg/L [static]; LC50 96 h Oncorhynchus mykiss 40761 mg/L [static]; LC50 96 h Pimephales promelas 40000 - 60000 mg/L [static]; LC50 96 h Poecilia reticulata 16000 mg/L [static]
Algae:	EC50 96 h Pseudokirchneriella subcapitata 6500 - 13000 mg/L IUCLID

Invertebrate:	EC50 48 h Daphnia magna 46300 mg/L IUCLID
Methanol	67-56-1
Fish:	LC50 96 h Pimephales promelas 28200 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]; LC50 96 h Oncorhynchus mykiss 19500 - 20700 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 18 - 20 mL/L [static]; LC50 96 h Lepomis macrochirus 13500 - 17600 mg/L [flow-through]
Ammonia	7664-41-7
Fish:	LC50 96 h Cyprinus carpio 0.44 mg/L; LC50 96 h Lepomis macrochirus 0.26 - 4.6 mg/L; LC50 96 h Lepomis macrochirus 1.17 mg/L [flow-through]; LC50 96 h Pimephales promelas 0.73 - 2.35 mg/L; LC50 96 h Pimephales promelas 5.9 mg/L [static]; LC50 96 h Poecilia reticulata >1.5 mg/L; LC50 96 h Poecilia reticulata 1.19 mg/L [static]
Invertebrate:	LC50 48 h Daphnia magna 25.4 mg/L IUCLID

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Ethylene glycol	107-21-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Methanol	67-56-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Ammonia	7664-41-7
SARA 302:	500 lb TPQ
SARA 313:	1 % de minimis concentration (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)
CERCLA:	100 lb final RQ; 45.4 kg final RQ
OSHA (safety):	10000 lb TQ anhydrous); 15000 lb TQ solution, >44% Ammonia by weight)
SARA 304:	100 lb EPCRA RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Chlorinated paraffins	Trade Secret	No	Yes	No	No	No
Ethylene glycol	107-21-1	Yes	Yes	Yes	Yes	Yes
Silica, crystalline	14808-60-7	No	Yes	Yes	Yes	Yes
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes
Methanol	67-56-1	Yes	Yes	Yes	Yes	Yes
Ammonia	7664-41-7	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects

Silica, crystalline	14808-60-7
Carc:	carcinogen , initial date 10/1/88 (airborne particles of respirable size)
Methanol	67-56-1
Repro/Dev. Tox	Developmental toxicity , initial date 3/16/12

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Ethylene glycol	107-21-1
	1 %
Silica, crystalline	14808-60-7
	1 %
Methanol	67-56-1
	1 %
Ammonia	7664-41-7
	1 %

Component Analysis - Inventory

Ethylene-vinyl acetate copolymer (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	ELN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Epoxidized soybean oil (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Nonylphenol polyethylene glycol ether (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

Chlorinated paraffins (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Polymer, ethyl acrylate and methacrylic acid (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ethylene glycol (107-21-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Fuller's earth (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Silica, crystalline (14808-60-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Limestone (1317-65-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	NSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Methanol (67-56-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

4,4-Dimethyloxazolidine (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Ammonia (7664-41-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Aluminium trihydroxide (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 1* Fire: 1 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 1 Fire: 1 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 15, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:
The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF404-4 15 pgs

CARLISLE HVAC PRODUCTS / HARDCAST DUCT SEALANTS & INSULATION ADHESIVES / DYNAIR DUCT HARDWARE & NEXUS FLANGE

Safety Data Sheet

Material Name: Sure-Grip 404 **Product #: 302014**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Sure-Grip 404

Synonyms
Solvent-based mastic

Chemical Family
Mastic

Product Use
Duct sealant

Restrictions on Use
For industrial use only

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Flammable Liquids - Category 2
Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Eye Irritation - Category 2A
Reproductive Toxicity - Category 1A
Specific Target Organ Toxicity - Repeated Exposure - Category 2

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
Highly flammable liquid and vapor
Causes skin irritation
Causes serious eye irritation
May damage fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure

Precautionary Statement(s)

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep container tightly closed
Keep away from heat/sparks/open flame/hot surfaces - No smoking
Ground/Bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Take precautionary measures against static discharge
Use only non-sparking tools
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapours/spray
Wash thoroughly after handling

Response
In case of fire: Use appropriate media to extinguish
IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Specific treatment (see label)

Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Trade Secret	Styrene butadiene polymer	5-10
Trade Secret	Polyphenol antioxidant	0.1-1
1314-13-2	Zinc oxide	1-5
21645-51-2	Aluminum hydroxide	5-10
108-88-3	Toluene	7-13
64742-89-8	Heptane	10-30

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
IF exposed or concerned: Get medical advice/attention.

Inhalation
Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

Skin
Remove/Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water/shower. If skin irritation occurs, get medical advice/attention.

Eyes
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion
If swallowed, get medical attention. Do NOT induce vomiting.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause gastrointestinal irritation.

Delayed
May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure: kidney, liver.

Note to Physicians
Contains organic solvents: heptane, toluene.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Dry chemical, foam or carbon dioxide. Water may be ineffective. Use water spray to keep containers cool.

Unsuitable Extinguishing Media
Do not use high-pressure water streams.

Special Hazards Arising from the Chemical
Can burn and explode easily when exposed to open flames or high heat.

Hazardous Combustion Products
oxides of carbon, oxides of nitrogen

Special Protective Equipment and Precautions for Firefighters
Highly flammable liquid and vapor. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flashback.

Fire Fighting Measures
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Remove all sources of ignition. Avoid breathing vapors. Ventilate affected area. Absorb with earth, sand or other non-combustible material and transfer to container. Use non-sparking tools. Dike for later disposal.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flame/hot surfaces - No smoking. Take precautionary measures against static discharge. Ground/bond container and receiving equipment. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do

not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Wash contaminated clothing before reuse. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up
Keep away from heat and ignition sources. Keep away from incompatible materials. Do not cut, puncture, or weld on or near this container.

Incompatible Materials
Strong oxidizing agents, acids, bases

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Limestone	1317-65-3	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]
Zinc oxide	1314-13-2	
ACGIH:	2 mg/m3 TWA respirable fraction	10 mg/m3 STEL respirable fraction
NIOSH:	5 mg/m3 TWA dust and fume	10 mg/m3 STEL fume
	15 mg/m3 Ceiling dust	500 mg/m3 IDLH
OSHA (US):	5 mg/m3 TWA fume; 15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	5 mg/m3 TWA LMPE-PPT fume; 10 mg/m3 TWA LMPE-PPT dust	
	10 mg/m3 STEL [LMPE-CT] fume	
Clay	1332-58-7	
ACGIH:	2 mg/m3 TWA particulate matter containing no asbestos and <1% crystalline silica, respirable fraction	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	

Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]
Silica gel	112926-00-8	
ACGIH:	10 mg/m3 TLV-TWA	
NIOSH:	6 mg/m3 TWA	3000 mg/m3 IDLH
OSHA (US):	20 mppcf TWA; ((80)/(% SiO2) mg/m3 TWA)	
Mexico:	10 mg/m3 TWA LMPE-PPT	
Toluene	108-88-3	
ACGIH:	20 ppm TWA	150 ppm STEL
NIOSH:	100 ppm TWA; 375 mg/m3 TWA	150 ppm STEL; 560 mg/m3 STEL
	500 ppm IDLH	
Europe:	50 ppm TWA; 192 mg/m3 TWA	100 ppm STEL; 384 mg/m3 STEL
	Possibility of significant uptake through the skin	
OSHA (US):	200 ppm TWA	150 ppm STEL
	300 ppm Ceiling	
Mexico:	50 ppm TWA LMPE-PPT; 188 mg/m3 TWA LMPE-PPT	
	Skin - potential for cutaneous absorption	
Heptane	64742-89-8	
NIOSH:	85 ppm TWA	440 ppm STEL
	500 ppm IDLH	
OSHA (US):	400 ppm TWA	500 ppm STEL

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Safety glasses or goggles are recommended when there is a potential for eye contact. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate work clothing. Wear protective shoes. Recommended material: protective skin cream.

Respiratory Protection
In case of inadequate ventilation wear respiratory protection. Appropriate respirator selection should be made by a qualified professional as part of a comprehensive respiratory protection program as described in 29 CFR 1910.134.

Glove Recommendations
Wear protective gloves. Recommended material: nitrile.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	gray mastic	**Physical State**	solid
Odor	mild,hydrocarbon odor	**Color**	gray
Odor Threshold	Not available	**pH**	Not available
Melting Point	-95 °C (-139 °F)	**Boiling Point**	90 - 111 °C (194-231 °F)
Freezing point	Not available	**Evaporation Rate**	3
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	230 °C (475 °F)	**Flash Point**	-7.2 °C (19 °F)
Lower Explosive Limit	1 %	**Decomposition**	Not available
Upper Explosive Limit	7 %	**Vapor Pressure**	45 mmHg
Vapor Density (air=1)	3.4	**Specific Gravity (water=1)**	Not available
Water Solubility	Negligible	**Partition coefficient: n-octanol/water**	Not available
Viscosity	450000 cps	**Solubility (Other)**	Hydrocarbons
Density	1 - 1.2 (relative)	**VOC**	395 g/L
Volatility by Weight	30 - 40 %		

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials
Strong oxidizing agents, acids, bases

Hazardous decomposition products
Oxides of carbon, oxides of nitrogen

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
May cause respiratory irritation.

Skin Contact
Causes skin irritation.

Eye Contact
Causes serious eye irritation.

Ingestion
May cause gastrointestinal irritation.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Polyphenol antioxidant (Trade Secret)
Oral LD50 Rat >200 mg/kg
Dermal LD50 Rabbit >5010 mg/kg
Inhalation LC50 Rat >165 mg/L 1 h

Zinc oxide (1314-13-2)
Oral LD50 Rat >5000 mg/kg

Aluminum hydroxide (21645-51-2)
Oral LD50 Rat >5000 mg/kg

Toluene (108-88-3)
Oral LD50 Rat 2600 mg/kg
Dermal LD50 Rabbit 12000 mg/kg
Inhalation LC50 Rat 12.5 mg/L 4 h

Heptane (64742-89-8)
Oral LD50 Mouse 5000 mg/kg
Dermal LD50 Rabbit 3000 mg/kg

Immediate Effects
Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause gastrointestinal irritation.

Delayed Effects
May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure: kidney, liver.

Irritation/Corrosivity Data
May cause skin irritation. Causes serious eye irritation. May cause respiratory irritation.

Respiratory Sensitization
No data available.

Dermal Sensitization
It may cause sensitization in some individuals.

Component Carcinogenicity

Clay	1332-58-7
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
DFG:	Category 3B (could be carcinogenic for man)
Silica gel	112926-00-8
IARC:	Monograph 68 [1997] (Group 3 (not classifiable))
Toluene	108-88-3
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Germ Cell Mutagenicity
No data available.

Reproductive Toxicity
May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
No data available.

Specific Target Organ Toxicity - Repeated Exposure
May cause damage to organs through prolonged or repeated exposure: kidney, liver.

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
No additional information available.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Avoid release to the environment.

Component Analysis - Aquatic Toxicity

Polyphenol antioxidant	Trade Secret
Fish:	LC50 96 h Oncorhynchus mykiss >0.2 mg/L [semi-static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata >0.2 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna >0.2 mg/L IUCLID
Toluene	108-88-3
Fish:	LC50 96 h Pimephales promelas 15.22 - 19.05 mg/L [flow-through] (1 day old); LC50 96 h Pimephales promelas 12.6 mg/L [static]; LC50 96 h Oncorhynchus mykiss 5.89 - 7.81 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 14.1 - 17.16 mg/L [static]; LC50 96 h Oncorhynchus mykiss 5.8 mg/L [semi-static]; LC50 96 h Lepomis macrochirus 11 - 15 mg/L [static]; LC50 96 h Oryzias latipes 54 mg/L [static]; LC50 96 h Poecilia reticulata 28.2 mg/L [semi-static]; LC50 96 h Poecilia reticulata 50.87 - 70.34 mg/L [static]
Algae:	EC50 96 h Pseudokirchneriella subcapitata >433 mg/L IUCLID; EC50 72 h Pseudokirchneriella subcapitata 12.5 mg/L [static] EPA
Invertebrate:	EC50 48 h Daphnia magna 5.46 - 9.83 mg/L [static] EPA; EC50 48 h Daphnia magna 11.5 mg/L IUCLID

Heptane	64742-89-8
Algae:	EC50 72 h Pseudokirchneriella subcapitata 4700 mg/L IUCLID

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: Adhesives
Hazard Class: 2
UN/NA #: UN1133
Packing Group: II
Required Label(s): Red caution label required (limited quantity if < 0.3 gal)

IATA Information:
Shipping Name:ADHESIVES
Hazard Class: 3
UN#: UN1133
Packing Group: II
Required Label(s): 3

TDG Information:
Shipping Name:ADHESIVES
Hazard Class: 3
UN#: UN1133
Packing Group: II
Required Label(s):

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Toluene	108-88-3
SARA 313:	1 % de minimis concentration
CERCLA:	1000 lb final RQ; 454 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes **Chronic Health:** Yes **Fire:** Yes **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes
Zinc oxide	1314-13-2	Yes	Yes	Yes	Yes	Yes
Clay	1332-58-7	No	Yes	Yes	Yes	Yes
Silica gel	112926-00-8	No	Yes	Yes	Yes	Yes
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects

Toluene	108-88-3
Repro/Dev. Tox	developmental toxicity , initial date 1/1/91
	female reproductive toxicity , initial date 8/7/09

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Zinc oxide	1314-13-2
	1 %

Material Name: Sure-Grip 404

Toluene	108-88-3
	1 %

Component Analysis - Inventory

Polyphenol antioxidant (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

Limestone (1317-65-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	NSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Zinc oxide (1314-13-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Clay (1332-58-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Aluminum hydroxide (21645-51-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Silica gel (112926-00-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
No	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Toluene (108-88-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX

Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Heptane (64742-89-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 2 Fire: 3 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 20, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Material Name: Sure-Grip 404 **Product #: 302014**

Other Information

Disclaimer:

The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Iron-Grip® 601

Synonyms
Sealant

Chemical Family
Water based mastic

Product Use
Duct sealant

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 1 (central nervous system, eyes, body, systemic toxicity)
Specific Target Organ Toxicity - Repeated Exposure - Category 1 (eyes,central nervous system)

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
May damage fertility or the unborn child
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure

Precautionary Statement(s)

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapours/spray
Wash thoroughly after handling
Do not eat, drink or smoke when using this product

Response
If exposed: Call a POISON CENTER or doctor/physician
Get medical advice/attention if you feel unwell
Specific treatment (see label)

Storage
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Statement of Unknown Toxicity
88.189% of the mixture consists of ingredient(s) of unknown acute toxicity.

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Trade Secret	De-foaming agent	0.1-1
Trade Secret	Nonylphenol polyethylene glycol ether	0.1-1
Mixture	Polymer, ethyl acrylate and methacrylic acid	0.1-1
Mixture	Acrylic polymer	0.1-1
141-43-5	Ethanolamine	0.1-1
Mixture	Polycarboxylate salt	0.1-1
107-21-1	Ethylene glycol	0.1-1
Mixture	Fuller's earth	1-5

14808-60-7	Silica, crystalline	0.1-1
1317-65-3	Limestone	15-40
Trade Secret	Clay compound	1-5
67-56-1	Methanol	1-5
Mixture	4,4-Dimethyloxazolidine	0.1-1
Mixture	1,2-Propylene glycol	0.1-1

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
If exposed or concerned: Call a POISON CENTER or doctor/physician.

Inhalation
Remove person to fresh air and keep comfortable for breathing. Get medical attention, if needed.

Skin
Wash exposed skin with soap and water. Remove contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.

Eyes
Flush eyes with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion
Do NOT induce vomiting. If swallowed, get medical attention.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
Causes damage to central nervous system, body, eyes, systemic toxicity.

Delayed
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure: eyes, central nervous system.

Note to Physicians
Contains. ethylene glycol, methanol

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media
None reported.

Special Hazards Arising from the Chemical
Slight fire hazard. Sealed containers may rupture or explode if exposed to heat.

Hazardous Combustion Products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Advice for firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. Do not inhale any material or combustion by-products.

Fire Fighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Absorb with earth, sand or other non-combustible material and transfer to container. Dike for later disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
This product contains crystalline silica, which is a known carcinogen: Do not grind or sand. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up
Store in a well-ventilated place. Store above 0 C. Store below 45 C. When not in use, keep containers tightly closed. Do not cut, puncture, or weld on or near this container.

Incompatible Materials
Strong acids, strong oxidizing agents

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Ethanolamine	141-43-5	
ACGIH:	3 ppm TWA	6 ppm STEL
NIOSH:	3 ppm TWA; 8 mg/m3 TWA	6 ppm STEL; 15 mg/m3 STEL
	30 ppm IDLH	
Europe:	1 ppm TWA; 2.5 mg/m3 TWA	3 ppm STEL; 7.6 mg/m3 STEL
	Possibility of significant uptake through the skin	
OSHA (US):	3 ppm TWA; 6 mg/m3 TWA	
Mexico:	3 ppm TWA LMPE-PPT; 8 mg/m3 TWA LMPE-PPT	
	6 ppm STEL [LMPE-CT]; 15 mg/m3 STEL [LMPE-CT]	
Ethylene glycol	107-21-1	
ACGIH:	100 mg/m3 Ceiling aerosol only	
Europe:	20 ppm TWA; 52 mg/m3 TWA	40 ppm STEL; 104 mg/m3 STEL
	Possibility of significant uptake through the skin	
Mexico:	100 mg/m3 Ceiling aerosol	
Silica, crystalline	14808-60-7	
ACGIH:	0.025 mg/m3 TWA respirable fraction	
NIOSH:	0.05 mg/m3 TWA respirable dust	50 mg/m3 IDLH respirable dust
OSHA (US):	((30)/(%SiO2 + 2) mg/m3 TWA) total dust; ((250)/(%SiO2 + 5) mppcf TWA) respirable fraction; ((10)/(%SiO2 + 2) mg/m3 TWA) respirable fraction	
Mexico:	0.1 mg/m3 TWA LMPE-PPT respirable fraction	
Limestone	1317-65-3	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]
Methanol	67-56-1	

ACGIH:	200 ppm TWA	250 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route	
NIOSH:	200 ppm TWA; 260 mg/m3 TWA	250 ppm STEL; 325 mg/m3 STEL
	Potential for dermal absorption	
	6000 ppm IDLH	
Europe:	200 ppm TWA; 260 mg/m3 TWA	
	Possibility of significant uptake through the skin	
OSHA (US):	200 ppm TWA; 260 mg/m3 TWA	
Mexico:	200 ppm TWA LMPE-PPT; 260 mg/m3 TWA LMPE-PPT	
	250 ppm STEL [LMPE-CT]; 310 mg/m3 STEL [LMPE-CT]	
	Skin - potential for cutaneous absorption	

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Provide adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Glove Recommendations
Wear protective gloves. Recommended material: Hycron(R), neoprene, nitrile.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	thick gray paste	**Physical State**	liquid
Odor	Slight,ammonia	**Color**	gray
Odor Threshold	Not available	**pH**	8.4 - 9.5
Melting Point	Not available	**Boiling Point**	212 °F
Freezing point	Not available	**Evaporation Rate**	30 - 40 % volatile
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available

Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	17 mmHg (@ 20 °C)
Vapor Density (air=1)	>1	**Specific Gravity (water=1)**	Not available
Water Solubility	soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	300 Kcps (@ 77 °F)	**Solubility (Other)**	Not available
Density	1.32 (relative)	**VOC**	49 g/L (SCAQMD calculation method)

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Hazardous decomposition products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
May cause adverse effects on the central nervous system.

Skin Contact
May cause mild skin irritation.

Eye Contact
May cause mild eye irritation.

Ingestion
Methanol can produce blindness with onset of symptoms being delayed for 18-24 hours.

Acute and Chronic Toxicity
Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Ethylene-vinyl acetate copolymer (Trade Secret)
Oral LD50 Rat >2000 mg/kg

Epoxidized soybean oil (Trade Secret)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >20 mL/kg

De-foaming agent (Trade Secret)
Oral LD50 >2000 mg/kg

Nonylphenol polyethylene glycol ether (Trade Secret)
Oral LD50 Rat 2780 mg/kg

Chlorinated paraffins (Trade Secret)
Oral LD50 Rat >4000 mg/kg

Polymer, ethyl acrylate and methacrylic acid (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg

Acrylic polymer (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg

Ethanolamine (141-43-5)
Oral LD50 Rat 1515 mg/kg
Dermal LD50 Rabbit 2504 mg/kg
Inhalation LC50 Rat >1.3 mg/L vapor 6 hr

Polycarboxylate salt (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg

Ethylene glycol (107-21-1)
Oral LD50 Rat 4700 mg/kg
Dermal LD50 Rat 10600 mg/kg
Inhalation LC50 Rat >200 mg/m3 vapor 4 hr

Silica, crystalline (14808-60-7)
Oral LD50 Rat 500 mg/kg

Limestone (1317-65-3)
Oral LD50 Rat 6450 mg/kg

Methanol (67-56-1)
Oral LD50 Rat 6200 mg/kg
Inhalation LC50 Rat 22500 ppm 8 h

4,4-Dimethyloxazolidine (Mixture)
Oral LD50 Rat 1037 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat 1.1 mg/L 4 hr

1,2-Propylene glycol (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg

Immediate Effects
Causes damage to central nervous system, body, eyes, systemic toxicity.

Delayed Effects
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure: eyes, central nervous system.

Irritation/Corrosivity Data
May cause mild skin irritation. May cause mild eye irritation.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

Chlorinated paraffins	Trade Secret
IARC:	Monograph 48 [1990] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3B (could be carcinogenic for man)
OSHA:	Present
Ethylene glycol	107-21-1
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
Silica, crystalline	14808-60-7
ACGIH:	A2 - Suspected Human Carcinogen
IARC:	Monograph 100C [2012]; Monograph 68 [1997] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen (respirable size)
DFG:	Category 1 (causes cancer in man, alveola fraction)

OSHA:	Present (respirable size)

Germ Cell Mutagenicity
No data available.

Reproductive Toxicity
May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
Central nervous system, body, systemic toxicity, eyes

Specific Target Organ Toxicity - Repeated Exposure
Central nervous system, eyes

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
This product contains crystalline silica, which is a known carcinogen. However, this component is bound by the polymer portion of the sealant. The only way this component would be released is through incineration. Therefore, this product is not considered a carcinogen.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Avoid release to the environment.

Component Analysis - Aquatic Toxicity

Ethylene-vinyl acetate copolymer	Trade Secret
Fish:	LC50 96 hr Cyprinus carpio >1000 mg/kg
Epoxidized soybean oil	Trade Secret
Fish:	LC50 48 hr freshwater fish 900 mg/L
Algae:	EC50 72 h Desmodesmus subspicatus 8 mg/L IUCLID
De-foaming agent	Trade Secret
Fish:	LC50 hr fish >100 mg/L
Chlorinated paraffins	Trade Secret
Fish:	LC50 96 h Lepomis macrochirus >300 mg/L [static]; LC50 96 h Oncorhynchus mykiss >0.0109 mg/L [flow-through];

	LC50 96 h Oncorhynchus mykiss 94.5 - 271 mg/L [static]; LC50 96 h Lepomis macrochirus >0.1 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]
Invertebrate:	EC50 48 hr Daphnia magna 0.0059 mg/L
Polymer, ethyl acrylate and methacrylic acid	Mixture
Fish:	LC50 96 hr Pimephales promelas >1000 mg/L
Ethanolamine	141-43-5
Fish:	LC50 96 h Pimephales promelas 227 mg/L [flow-through]; LC50 96 h Brachydanio rerio 3684 mg/L [static]; LC50 96 h Lepomis macrochirus 300 - 1000 mg/L [static]; LC50 96 h Oncorhynchus mykiss 114 - 196 mg/L [static]; LC50 96 h Oncorhynchus mykiss >200 mg/L [flow-through]
Algae:	EC50 72 h Desmodesmus subspicatus 15 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna 65 mg/L IUCLID
Ethylene glycol	107-21-1
Fish:	LC50 96 h Oncorhynchus mykiss 41000 mg/L; LC50 96 h Oncorhynchus mykiss 14 - 18 mL/L [static]; LC50 96 h Lepomis macrochirus 27540 mg/L [static]; LC50 96 h Oncorhynchus mykiss 40761 mg/L [static]; LC50 96 h Pimephales promelas 40000 - 60000 mg/L [static]; LC50 96 h Poecilia reticulata 16000 mg/L [static]
Algae:	EC50 96 h Pseudokirchneriella subcapitata 6500 - 13000 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna 46300 mg/L IUCLID
Limestone	1317-65-3
Fish:	LC50 hr fish >200 mg/L
Methanol	67-56-1
Fish:	LC50 96 h Pimephales promelas 28200 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static];

	LC50 96 h Oncorhynchus mykiss 19500 - 20700 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 18 - 20 mL/L [static]; LC50 96 h Lepomis macrochirus 13500 - 17600 mg/L [flow-through]
1,2-Propylene glycol	Mixture
Fish:	LC50 96 h Oncorhynchus mykiss 51600 mg/L [static]; LC50 96 h Oncorhynchus mykiss 41 - 47 mL/L [static]; LC50 96 h Pimephales promelas 51400 mg/L [static]; LC50 96 h Pimephales promelas 710 mg/L
Algae:	EC50 96 h Pseudokirchneriella subcapitata 19000 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna >1000 mg/L [static] EPA

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

IMDG Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Ethylene glycol	107-21-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Methanol	67-56-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Chlorinated paraffins	Trade Secret	No	Yes	No	No	No
Ethanolamine	141-43-5	Yes	Yes	Yes	Yes	Yes
Ethylene glycol	107-21-1	Yes	Yes	Yes	Yes	Yes
Silica, crystalline	14808-60-7	No	Yes	Yes	Yes	Yes
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes
Methanol	67-56-1	Yes	Yes	Yes	Yes	Yes
1,2-Propylene glycol	Mixture	No	No	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects

Silica, crystalline	14808-60-7
Carc:	carcinogen , initial date 10/1/88 (airborne particles of respirable size)
Methanol	67-56-1
Repro/Dev. Tox	Developmental toxicity , initial date 3/16/12

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Ethanolamine	141-43-5
	1 %
Ethylene glycol	107-21-1
	1 %
Silica, crystalline	14808-60-7
	1 %
Methanol	67-56-1
	1 %
1,2-Propylene glycol	Mixture
	1 %

Component Analysis - Inventory
Ethylene-vinyl acetate copolymer (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	ELN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Epoxidized soybean oil (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Nonylphenol polyethylene glycol ether (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

Chlorinated paraffins (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Polymer, ethyl acrylate and methacrylic acid (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ethanolamine (141-43-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ethylene glycol (107-21-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Fuller's earth (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Silica, crystalline (14808-60-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Limestone (1317-65-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	NSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Methanol (67-56-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

4,4-Dimethyloxazolidine (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

1,2-Propylene glycol (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

HMIS Rating
Health: 1* Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings
Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 27, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information
Disclaimer:
The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF 701
9 pages

Safety Data Sheet

Material Name: Butyl Roll Sealants

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

Foil-Grip 1402
BRT 801
TPO 2265
Foil-Grip 1404-181BFX
Aluma-Grip 701
All-Purpose 1602
TGM-3300
Foil-Grip 1403-181BFX
RMR 6325
TPO Line Set Wrap

Trade Names

Part Number(s): 304083, 304093, 304094, 304095, 304096, 304099, 304100, 304077, 304078, 304079, 304080, 304081, 304082, 309780, 309781, 322832, 304181, 304182, 304183, 304184, 304185, 304186, 304085, 304086, 304087, 304088, 304089, 304203, 304204, 304205, 304206, 310684, 310685, 310686, 310687, 310692, 304259, 304260, 304261, 304262, 304983 304212, 304214 326380, 326381 325803, 325804, 325805

Synonyms

Roll Sealant

Chemical Family

Butyl Adhesive Tape

Product Use

Duct sealant, construction tapes

Restrictions on Use

For industrial use only.

Manufacturer Information

Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Phone Numbers:

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

The products listed above are considered "articles" as defined in the OSHA Hazard Communication Standard, 29 CFR 1910.1200 and are considered "manufactured articles" as defined by the Canadian Hazardous Products Act (R.S.C., 1985, c. H-3) and as such are exempt from the requirement for an SDS. Under normal conditions of use, these products do not pose a hazard in the workplace or to the building occupants. Since these products or "articles" pose no health hazard under normal conditions of use, there is no requirement for an SDS. In addition, "articles" are not included in the scope of the Globally

Safety Data Sheet

Material Name: Butyl Roll Sealants

Harmonized System (GHS). For that reason, the GHS labeling elements are not included on this SDS. Although these products are not subject to the OSHA or Canadian standards or GHS labelling elements, Carlisle would like to disclose as much health and safety information as possible to ensure that these products are handled and used properly. This SDS contains information critical to the safe handling and proper use of the products. It is recommended that this SDS should be retained and made available to the users of these products. In addition, the recommendations for handling and use of these products should be included in worker training programs.

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
None known

GHS Label Elements

Symbol(s)
None

Signal Word
None

Hazard Statement(s)
None

Precautionary Statement(s)

Prevention
None
Wash thoroughly after handling

Response

Storage
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Proprietary	Butyl Roll Sealant	100%

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
None known.

Safety Data Sheet

Material Name: Butyl Roll Sealants

Inhalation
Cannot be inhaled under normal circumstances.

Skin
Repeated contact with skin may result in irritation due to adhesive nature of product. Protective creams may be useful. If skin irritation occurs, get medical advice/attention.

Eyes
Cannot get into eyes under normal circumstances.

Ingestion
Cannot be ingested under normal circumstances.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
None known

Delayed
None known

Note to Physicians
Nothing known to note

Section 5 - FIREFIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media
None reported.

Special Hazards Arising from the Chemical
None known

Hazardous Combustion Products
oxides of carbon, oxides of nitrogen, hydrocarbons

Advice for firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. Do not inhale any material or combustion by-products.

Firefighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Safety Data Sheet

Material Name: Butyl Roll Sealants

Methods and Materials for Containment and Cleaning Up
Sweep up and dispose in accordance with all applicable regulations.

Environmental Precautions
None known

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
None known. Suggest wearing protective gloves. Wash thoroughly after handling. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up
Store in a well-ventilated place. Store above 6 C. Store below 45 C.

Incompatible Materials
None known

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits
No known exposure limits

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Provide adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
No special protection needed.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
None required.

Glove Recommendations
Wear protective gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Various backings with grey or black pressure sensitive adhesive	**Physical State**	solid

Safety Data Sheet

Material Name: Butyl Roll Sealants

Odor	None	**Color**	Various color and construction base substrates with grey or black adhesive
Odor Threshold	Not available	**pH**	Not available
Melting Point	Not available	**Boiling Point**	Not available
Freezing point	Not available	**Evaporation Rate**	Not available
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	Not available
Vapor Density (air=1)	Not available	**Specific Gravity (water=1)**	Not available
Water Solubility	Not soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	Not available	**Solubility (Other)**	Not available
Density	>1.00 (relative)	**VOC**	None

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
None known

Incompatible Materials
None known

Hazardous decomposition products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Safety Data Sheet

Material Name: Butyl Roll Sealants

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
Unlikely under normal conditions

Skin Contact
May cause mild skin irritation with repeated contact.

Eye Contact
Unlikely under normal conditions

Ingestion
Unlikely under normal conditions.

Acute and Chronic Toxicity
No acute or chronic effects known.

Immediate Effects
No immediate effects known.

Delayed Effects
No delayed effects known.

Irritation/Corrosivity Data
My cause skin irritation with repeated contact. No other effects known.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity
No data available

Germ Cell Mutagenicity
No data available.

Reproductive Toxicity
No data available..

Specific Target Organ Toxicity - Single Exposure
No data available

Specific Target Organ Toxicity - Repeated Exposure
No data available

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
No additional information available.

Safety Data Sheet

Material Name: Butyl Roll Sealants

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
No data available

Component Analysis - Aquatic Toxicity
No data available

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan:
None

Safety Data Sheet

Material Name: Butyl Roll Sealants

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: No **Chronic Health:** No **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:
None known

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
None known.

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL:
None known

Component Analysis - Inventory
Finished product is not hazardous. Component analysis not required.

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
No	No	No	No	No	No	No	No	No	No	No	No

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 0 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 0 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
Revision Date: June 1, 2018
Revision Note: General Update

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and

Safety Data Sheet

Material Name: Butyl Roll Sealants

Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:
The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF (DT5300) 9 pgs

CARLISLE HVAC PRODUCTS / HARDCAST DUCT SEALANTS & INSULATION ADHESIVES / DYNAIR DUCT HARDWARE & NEXUS FLANGE

Safety Data Sheet

Material Name: DT Tape **Product #'s: 304164, 304165**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Hardcast DT Tape – 3 inch and 4 inch wide

Synonyms
DT Tape, Two Part Sealing System

Chemical Family
Gypsum coated fabric

Product Use
Duct sealant system

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

The products listed above are considered "articles" as defined in the OSHA Hazard Communication Standard, 29 CFR 1910.1200 and are considered "manufactured articles" as defined by the Canadian Hazardous Products Act (R.S.C., 1985, c. H-3) and as such are exempt from the requirement for an SDS . Under normal conditions of use, these products do not pose a hazard in the workplace or to the building occupants. Since these products or "articles" pose no health hazard under normal conditions of use, there is no requirement for an SDS. In addition, "articles" are not included in the scope of the Globally Harmonized System (GHS). For that reason, the GHS labeling elements are not included on this SDS. Although these products are not subject to the OSHA or Canadian standards or GHS labelling elements, Carlisle would like to disclose as much health and safety information as possible to ensure that these products are handled and used properly. This SDS contains information critical to the safe handling and proper use of the products. It is recommended that this SDS should be retained and made

available to the users of these products. In addition, the recommendations for handling and use of these products should be included in worker training programs.

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Not classified

GHS Label Elements

Symbol(s)
None required

Signal Word
None required

Hazard Statement(s)
None required

Precautionary Statement(s)
None required

Prevention
None
Wash thoroughly after handling

Response

Storage
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Proprietary	Duct Sealant	100%

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
None known.

Inhalation
Cannot be inhaled under normal circumstances.

Skin
Repeated contact with skin may result in irritation due to adhesive nature of product. Protective creams may be useful. If skin irritation occurs, get medical advice/attention.

Eyes
Cannot get into eyes under normal circumstances.

Ingestion
Cannot be ingested under normal circumstances.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
None known

Delayed
None known

Note to Physicians
Nothing known to note

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media
None reported.

Special Hazards Arising from the Chemical
None known

Hazardous Combustion Products
oxides of carbon, oxides of nitrogen, hydrocarbons

Advice for firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. Do not inhale any material or combustion by-products.

Fire Fighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Sweep up and dispose in accordance with all applicable regulations.

Environmental Precautions
None known

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
None known. Suggest wearing protective gloves. Wash thoroughly after handling. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up
Store in a well-ventilated place. Store above 6 C. Store below 45 C.

Incompatible Materials
None known

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits
No known exposure limits

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Provide adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
No special protection needed.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
None required.

Glove Recommendations
Wear protective gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White coated fabric	**Physical State**	solid
Odor	None	**Color**	White
Odor Threshold	Not available	**pH**	Not available

Melting Point	Not available	**Boiling Point**	Not available
Freezing point	Not available	**Evaporation Rate**	Not available
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	Not available
Vapor Density (air=1)	Not available	**Specific Gravity (water=1)**	Not available
Water Solubility	Not soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	Not available	**Solubility (Other)**	Not available
Density	>1.00 (relative)	**VOC**	None

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
None known

Incompatible Materials
None known

Hazardous decomposition products
oxides of carbon, oxides of nitrogen, hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
Unlikely under normal conditions

Skin Contact
May cause mild skin irritation with repeated contact.

Eye Contact
Unlikely under normal conditions

Ingestion
Unlikely under normal conditions.

Acute and Chronic Toxicity

No acute or chronic effects known.

Immediate Effects
No immediate effects known.

Delayed Effects
No delayed effects known.

Irritation/Corrosivity Data
My cause skin irritation with repeated contact. No other effects known.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

No data available

Germ Cell Mutagenicity
No data available.

Reproductive Toxicity
No data available..

Specific Target Organ Toxicity - Single Exposure
No data available

Specific Target Organ Toxicity - Repeated Exposure
No data available

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
No additional information available.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
No data available

Component Analysis - Aquatic Toxicity

No data available

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan:

None

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: No **Chronic Health:** No **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

None known

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

None known.

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL:

None known

Component Analysis - Inventory
Finished product is not hazardous. Component analysis not required.

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
No	No	No	No	No	No	No	No	No	No	No	No

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 0 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 0 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: December 15, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability

Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:

The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF Booth-Tack
20 pgs

Safety Data Sheet

Material Name: Booth-Tack

Product #: 308585- 5 gal
308587- 50 gal

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Booth-Tack

Synonyms
Water-based Adhesive

Chemical Family
Adhesive

Product Use
Water based Adhesive

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 1 (respiratory system, body, central nervous system, systemic toxicity, eyes)
Specific Target Organ Toxicity - Repeated Exposure - Category 1 (kidneys,respiratory system,eyes,central nervous system)

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
May damage fertility or the unborn child
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure

Precautionary Statement(s)

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapours/spray
Wash thoroughly after handling
Do not eat, drink or smoke when using this product

Response
If exposed: Call a POISON CENTER or doctor/physician
Get medical advice/attention if you feel unwell
Specific treatment (see label)

Storage
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Mixture	Polymer, ethyl acrylate and methacrylic acid	0.5-1.5
Trade Secret	De-foaming agent	0.1-1
7664-41-7	Ammonia	0.1-1
Mixture	Polymer, vinyl acetate and vinyl acrylic	10-30
Trade Secret	Clay compound	0.5-1.5
1317-65-3	Limestone	10-30
67-56-1	Methanol	1-5
Mixture	4,4-Dimethyloxazolidine	0.1-1
Trade Secret	Carbamic acid mixture	0.1-1
Mixture	Polycarboxylate salt	0.1-1

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
If exposed: Call a POISON CENTER or doctor/physician.

Inhalation
Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

Skin
Wash exposed skin with soap and water. Remove contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.

Eyes
Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion
Do NOT induce vomiting. If swallowed, get medical attention.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
May cause mild eye irritation. Causes damage to respiratory system, body, central nervous system, systemic toxicity, eyes.

Delayed
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure: kidneys, respiratory system, eyes, central nervous system.

Note to Physicians
Contains: ammonia, methanol.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use carbon dioxide, regular dry chemical, regular foam or water.

Unsuitable Extinguishing Media
None known.

Special Hazards Arising from the Chemical
Slight fire hazard. Sealed containers may rupture or explode if exposed to heat.

Hazardous Combustion Products
oxides of carbon, oxides of nitrogen, hydrocarbons

Fire Fighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Absorb with earth, sand or other non-combustible material and transfer to container. Dike for later disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
This product contains crystalline silica, which is a known carcinogen: Do not grind or sand. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up
Store above 0 C. Store below 45 C. Do not cut, puncture, or weld on or near this container. Avoid contact with incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Ammonia	7664-41-7	
ACGIH:	25 ppm TWA	35 ppm STEL
NIOSH:	25 ppm TWA; 18 mg/m3 TWA	35 ppm STEL; 27 mg/m3 STEL
	300 ppm IDLH	

Europe:	20 ppm TWA; 14 mg/m3 TWA	50 ppm STEL; 36 mg/m3 STEL
OSHA (US):	50 ppm TWA; 35 mg/m3 TWA	
Mexico:	25 ppm TWA LMPE-PPT; 18 mg/m3 TWA LMPE-PPT	
	35 ppm STEL [LMPE-CT]; 27 mg/m3 STEL [LMPE-CT]	
Clay compound	Trade Secret	
ACGIH:	0.025 mg/m3 TWA respirable fraction	
NIOSH:	0.05 mg/m3 TWA respirable dust	50 mg/m3 IDLH respirable dust
OSHA (US):	((30)/(%SiO2 + 2) mg/m3 TWA) total dust; ((250)/(%SiO2 + 5) mppcf TWA) respirable fraction; ((10)/(%SiO2 + 2) mg/m3 TWA) respirable fraction	
Mexico:	0.1 mg/m3 TWA LMPE-PPT respirable fraction	
Carbon black	1333-86-4	
ACGIH:	3 mg/m3 TWA inhalable fraction	
NIOSH:	3.5 mg/m3 TWA; 0.1 mg/m3 TWA (Carbon black in presence of Polycyclic aromatic hydrocarbons) as PAH	
	1750 mg/m3 IDLH	
OSHA (US):	3.5 mg/m3 TWA	
Mexico:	3.5 mg/m3 TWA LMPE-PPT	7 mg/m3 STEL [LMPE-CT]
Limestone	1317-65-3	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]

Methanol	67-56-1	
ACGIH:	200 ppm TWA	250 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route	
NIOSH:	200 ppm TWA; 260 mg/m3 TWA	250 ppm STEL; 325 mg/m3 STEL
	Potential for dermal absorption	
	6000 ppm IDLH	
Europe:	200 ppm TWA; 260 mg/m3 TWA	
	Possibility of significant uptake through the skin	
OSHA (US):	200 ppm TWA; 260 mg/m3 TWA	
Mexico:	200 ppm TWA LMPE-PPT; 260 mg/m3 TWA LMPE-PPT	
	250 ppm STEL [LMPE-CT]; 310 mg/m3 STEL [LMPE-CT]	
	Skin - potential for cutaneous absorption	

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Ensure adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear safety glasses or safety goggles, with a faceshield, as appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
A NIOSH approved respirator with a dust, mist, and fume filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits or when symptoms have been observed that are indicative of overexposure.

Glove Recommendations
Wear appropriate gloves. Recommended material type: Hycron(R), neoprene, nitrile.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	gray latex	**Physical State**	liquid
Odor	Slight,ammonia	**Color**	gray
Odor Threshold	Not available	**pH**	8 - 9
Melting Point	Not available	**Boiling Point**	100°C (212 °F)
Freezing point	Not available	**Evaporation Rate**	44 - 46 % volatile
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	17 mmHg (@ 20 °C)
Vapor Density (air=1)	<1	**Specific Gravity (water=1)**	Not available
Water Solubility	Soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	8500 - 9500 cps	**Solubility (Other)**	Not available
Density	1.2 (relative)	**VOC**	72 g/L (water excluded)

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Hazardous decomposition products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
May cause respiratory irritation.

Skin Contact
May cause mild skin irritation.

Eye Contact
May cause mild eye irritation.

Ingestion
Methanol can produce blindness with onset of symptoms being delayed for 18-24 hours.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Polymer, ethyl acrylate and methacrylic acid (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg
De-foaming agent (Trade Secret)
Oral LD50 >2000 mg/kg
Chlorinated paraffins (Trade Secret)]
Oral LD50 Rat >4 g/kg
Ammonia (7664-41-7)
Oral LD50 Rat 350 mg/kg
Inhalation LC50 Rat 2000 ppm 4 h
Polymer, vinyl acetate and vinyl acrylic (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rat >2000 mg/kg
Clay compound (Trade Secret)

Oral LD50 Rat 500 mg/kg
Ethoxylated nonylphenol (Trade Secret)
Oral LD50 Rat 2590 mg/kg
Dermal LD50 Rabbit 1780 µL/kg
Carbon black (1333-86-4)
Oral LD50 Rat >15400 mg/kg
Limestone (1317-65-3)
Oral LD50 Rat 6450 mg/kg
Methanol (67-56-1)
Oral LD50 Rat 6200 mg/kg
Inhalation LC50 Rat 22500 ppm 8 h
4,4-Dimethyloxazolidine (Mixture)
Oral LD50 Rat 1037 mg/kg
Dermal LD50 Rat >2000 mg/kg
Inhalation LC50 Rat 1.1 mg/L 4 hr
Carbamic acid mixture (Trade Secret)
Oral LD50 Rat >2000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >2.04 mg/L 4 hr
Polycarboxylate salt (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >5.1 mg/L mist
Octylphenol ethoxylate (Trade Secret)
Oral LD50 Rat 2800 mg/kg

Immediate Effects
May cause mild eye irritation. Causes damage to respiratory system, body, central nervous system, systemic toxicity, eyes.

Delayed Effects
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure: kidneys, respiratory system, eyes, central nervous system.

Irritation/Corrosivity Data
May cause respiratory irritation. May cause mild skin irritation. May cause mild eye irritation.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

Chlorinated paraffins	Trade Secret
IARC:	Monograph 48 [1990] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3B (could be carcinogenic for man)
OSHA:	Present
Clay compound	Trade Secret
ACGIH:	A2 - Suspected Human Carcinogen
IARC:	Monograph 100C [2012]; Monograph 68 [1997] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen (respirable size)
DFG:	Category 1 (causes cancer in man, alveola fraction)
OSHA:	Present (respirable size)
Carbon black	1333-86-4
ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC:	Monograph 93 [2010]; Monograph 65 [1996] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3B (could be carcinogenic for man, inhalable fraction)
OSHA:	Present

Germ Cell Mutagenicity
No data available.

Tumorigenic Data
No data available

Reproductive Toxicity
May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
Respiratory system, body, central nervous system, systemic toxicity, eyes

Specific Target Organ Toxicity - Repeated Exposure
Respiratory system, central nervous system, kidneys, eyes

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
This product contains crystalline silica, which is a known carcinogen. However, this component is bound by the polymer portion of the sealant. The only way this component would be released is through incineration. Therefore, this product is not considered a carcinogen.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Avoid release to the environment.

Component Analysis - Aquatic Toxicity

Polymer, ethyl acrylate and methacrylic acid	Mixture
Fish:	LC50 96 hr Pimephales promelas >1000 mg/L
Invertebrate:	EC50 48 hr Daphnia magna >1000 mg/L
Chlorinated paraffins	Trade Secret
Fish:	LC50 96 h Lepomis macrochirus >300 mg/L [static]; LC50 96 h Oncorhynchus mykiss >0.0109 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 94.5 - 271 mg/L [static]; LC50 96 h Lepomis macrochirus >0.1 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]
Invertebrate:	EC50 48 hr Daphnia magna 0.0059 mg/L

Ammonia	7664-41-7
Fish:	LC50 96 h Cyprinus carpio 0.44 mg/L; LC50 96 h Lepomis macrochirus 0.26 - 4.6 mg/L; LC50 96 h Lepomis macrochirus 1.17 mg/L [flow-through]; LC50 96 h Pimephales promelas 0.73 - 2.35 mg/L; LC50 96 h Pimephales promelas 5.9 mg/L [static]; LC50 96 h Poecilia reticulata >1.5 mg/L; LC50 96 h Poecilia reticulata 1.19 mg/L [static]
Invertebrate:	LC50 48 h Daphnia magna 25.4 mg/L IUCLID
Polymer, vinyl acetate and vinyl acrylic	Mixture
Fish:	LC50 96 hr Oncorhynchis mykiss >1000 mg/L
Invertebrate:	EC50 48 hr Daphnia magna >100 mg/L
Hydrocarbon defoamer	Trade Secret
Fish:	LC50 96 h Oncorhynchus mykiss >5000 mg/L
Invertebrate:	EC50 48 h Daphnia magna >1000 mg/L IUCLID
Methanol	67-56-1
Fish:	LC50 96 h Pimephales promelas 28200 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]; LC50 96 h Oncorhynchus mykiss 19500 - 20700 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 18 - 20 mL/L [static]; LC50 96 h Lepomis macrochirus 13500 - 17600 mg/L [flow-through]
4,4-Dimethyloxazolidine	Mixture
Fish:	LC50 96 hr Rainbow trout 95 mg/L [flow-through]

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

IMDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Ammonia	7664-41-7
SARA 302:	500 lb TPQ

SARA 313:	1 % de minimis concentration (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)
CERCLA:	100 lb final RQ; 45.4 kg final RQ
OSHA (safety):	10000 lb TQ anhydrous); 15000 lb TQ solution, >44% Ammonia by weight)
SARA 304:	100 lb EPCRA RQ
Ethoxylated nonylphenol	Trade Secret
TSCA 12b:	Section 5 , 1 % de minimus concentration
Methanol	67-56-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Carbamic acid mixture	Trade Secret
CERCLA:	10 lb final RQ; 4.54 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Chlorinated paraffins	Trade Secret	No	Yes	No	No	No
Ammonia	7664-41-7	Yes	Yes	Yes	Yes	Yes
Clay compound	Trade Secret	No	Yes	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	Yes	Yes	Yes	Yes
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes
Methanol	67-56-1	Yes	Yes	Yes	Yes	Yes
Carbamic acid mixture	Trade Secret	No	No	No	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects

Clay compound	Trade Secret
Carc:	carcinogen , 10/1/1988 (airborne particles of respirable size)
Carbon black	1333-86-4
Carc:	carcinogen , 2/21/2003 (airborne, unbound particles of respirable size)
Methanol	67-56-1
Repro/Dev. Tox	developmental toxicity , 3/16/2012

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Ammonia	7664-41-7
	1 %
Clay compound	Trade Secret
	1 %
Carbon black	1333-86-4
	1 %
Methanol	67-56-1
	1 %
Octylphenol ethoxylate	Trade Secret
	1 %

Component Analysis - Inventory
Polymer, ethyl acrylate and methacrylic acid (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Chlorinated paraffins (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ammonia (7664-41-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Clay compound (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ethoxylated nonylphenol (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Carbon black (1333-86-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Hydrocarbon defoamer (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Limestone (1317-65-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	NSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Methanol (67-56-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

4,4-Dimethyloxazolidine (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Carbamic acid mixture (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Octylphenol ethoxylate (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

1,3-Pentadiene, polymer with 2-methyl-2-butene (26813-14-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 1* Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 21, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation,

Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:
The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HE Coil Tack 18pgs

CARLISLE HVAC PRODUCTS / HARDCAST DUCT SEALANTS & INSULATION ADHESIVES / DYNAIR DUCT HARDWARE & NEXUS FLANGE

Safety Data Sheet

Material Name: Coil-Tack W (White)

Product #:308580-5 gal
308581-50 gal

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Coil-Tack W (White)

Synonyms
Water-based Adhesive

Chemical Family
Adhesive

Product Use
Water based Adhesive

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Reproductive Toxicity - Category 1B

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
May damage fertility or the unborn child

Precautionary Statement(s)

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection

Response
IF exposed or concerned: Get medical advice/attention

Storage
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Mixture	Polymer, ethyl acrylate and methacrylic acid	1-5
Trade Secret	De-foaming agent	0.1-1
7664-41-7	Ammonia	0.1-1
107-21-1	Ethylene glycol	0.1-1
Mixture	Polymer, vinyl acetate and vinyl acetate-acrylic	5-10
Trade Secret	Clay compound	0.1-1
1317-65-3	Limestone	10-30
67-56-1	Methanol	0.1-1
Mixture	4,4-Dimethyloxazolidine	0.1-1
Trade Secret	Carbamic acid mixture	0.1-1
Mixture	Polycarboxylate salt	0.1-1
Mixture	Titanium dioxide	0.1-1

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
If exposed: Call a POISON CENTER or doctor/physician.

Inhalation
Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

Skin
Wash exposed skin with soap and water. Remove contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.

Eyes
Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion
Do NOT induce vomiting. If swallowed, get medical attention.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
May cause mild eye irritation.

Delayed
May damage fertility or the unborn child.

Note to Physicians
Contains: ethylene glycol, ammonia, methanol.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use carbon dioxide, regular dry chemical, regular foam or water.

Unsuitable Extinguishing Media
None known.

Special Hazards Arising from the Chemical
Slight fire hazard. Sealed containers may rupture or explode if exposed to heat.

Hazardous Combustion Products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Advice for firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Absorb with earth, sand or other non-combustible material and transfer to container. Dike for later disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
This product contains crystalline silica, which is a known carcinogen: Do not grind or sand. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up
Store above 0 C. Store below 45 C. Do not cut, puncture, or weld on or near this container. Avoid contact with incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Ammonia	7664-41-7	
ACGIH:	25 ppm TWA	35 ppm STEL
NIOSH:	25 ppm TWA; 18 mg/m3 TWA	35 ppm STEL; 27 mg/m3 STEL
	300 ppm IDLH	
Europe:	20 ppm TWA; 14 mg/m3 TWA	50 ppm STEL; 36 mg/m3 STEL

OSHA (US):	50 ppm TWA; 35 mg/m3 TWA	
Mexico:	25 ppm TWA LMPE-PPT; 18 mg/m3 TWA LMPE-PPT	
	35 ppm STEL [LMPE-CT]; 27 mg/m3 STEL [LMPE-CT]	
Ethylene glycol	107-21-1	
ACGIH:	100 mg/m3 Ceiling aerosol only	
Europe:	20 ppm TWA; 52 mg/m3 TWA	40 ppm STEL; 104 mg/m3 STEL
	Possibility of significant uptake through the skin	
Mexico:	100 mg/m3 Ceiling aerosol	
Clay compound	Trade Secret	
ACGIH:	0.025 mg/m3 TWA respirable fraction	
NIOSH:	0.05 mg/m3 TWA respirable dust	50 mg/m3 IDLH respirable dust
OSHA (US):	((30)/(%SiO2 + 2) mg/m3 TWA) total dust; ((250)/(%SiO2 + 5) mppcf TWA) respirable fraction; ((10)/(%SiO2 + 2) mg/m3 TWA) respirable fraction	
Mexico:	0.1 mg/m3 TWA LMPE-PPT respirable fraction	
Limestone	1317-65-3	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]
Methanol	67-56-1	
ACGIH:	200 ppm TWA	250 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route	
NIOSH:	200 ppm TWA; 260 mg/m3 TWA	250 ppm STEL; 325 mg/m3 STEL
	Potential for dermal absorption	
	6000 ppm IDLH	

Europe:	200 ppm TWA; 260 mg/m3 TWA	
	Possibility of significant uptake through the skin	
OSHA (US):	200 ppm TWA; 260 mg/m3 TWA	
Mexico:	200 ppm TWA LMPE-PPT; 260 mg/m3 TWA LMPE-PPT	
	250 ppm STEL [LMPE-CT]; 310 mg/m3 STEL [LMPE-CT]	
	Skin - potential for cutaneous absorption	
Titanium dioxide	Mixture	
ACGIH:	10 mg/m3 TWA	
NIOSH:	5000 mg/m3 IDLH	
OSHA (US):	15 mg/m3 TWA total dust	
Mexico:	10 mg/m3 TWA LMPE-PPT as Ti	20 mg/m3 STEL [LMPE-CT] as Ti
Silica, amorphous	7631-86-9	
NIOSH:	6 mg/m3 TWA	3000 mg/m3 IDLH
OSHA (US):	20 mppcf TWA; ((80)/(% SiO2) mg/m3 TWA)	

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Ensure adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear safety glasses or safety goggles, with a faceshield, as appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
A NIOSH approved respirator with a dust, mist, and fume filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits or when symptoms have been observed that are indicative of overexposure.

Glove Recommendations
Wear appropriate gloves. Recommended material type: Hycron(R), neoprene, nitrile.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white latex	**Physical State**	liquid
Odor	Slight,ammonia	**Color**	white
Odor Threshold	Not available	**pH**	8 - 9
Melting Point	Not available	**Boiling Point**	212 °F
Freezing point	Not available	**Evaporation Rate**	60 - 64 % volatile
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	17 mmHg (@ 20 °C)
Vapor Density (air=1)	<1	**Specific Gravity (water=1)**	Not available
Water Solubility	Soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	13 - 15 Kcps	**Solubility (Other)**	Not available
Density	1.22 (relative)	**VOC**	71 g/L (water excluded)

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials
strong acids, strong oxidizing agents

Hazardous decomposition products
oxides of carbon, oxides of nitrogen, hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
May cause respiratory irritation.

Skin Contact
May cause mild skin irritation.

Eye Contact
May cause mild eye irritation.

Ingestion
Methanol can produce blindness with onset of symptoms being delayed for 18-24 hours.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:

Polymer, ethyl acrylate and methacrylic acid (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >5000 mg/kg

De-foaming agent (Trade Secret)
Oral LD50 >2000 mg/kg

Chlorinated paraffins (Trade Secret)
Oral LD50 Rat >4 g/kg

Ammonia (7664-41-7)
Oral LD50 Rat 350 mg/kg
Inhalation LC50 Rat 2000 ppm 4 h

Ethylene glycol (107-21-1)
Oral LD50 Rat 4700 mg/kg
Dermal LD50 Rat 10600 mg/kg
Inhalation LC50 Rat >200 mg/m3 vapor 4 hr

Polymer, vinyl acetate and vinyl acetate-acrylic (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rat >2000 mg/kg

Clay compound (Trade Secret)

Oral LD50 Rat 500 mg/kg

Limestone (1317-65-3)
Oral LD50 Rat 6450 mg/kg

Methanol (67-56-1)
Oral LD50 Rat 6200 mg/kg
Inhalation LC50 Rat 22500 ppm 8 h

4,4-Dimethyloxazolidine (Mixture)
Oral LD50 Rat 1037 mg/kg
Dermal LD50 Rat >2000 mg/kg
Inhalation LC50 Rat 1.1 mg/L 4 hr

Carbamic acid mixture (Trade Secret)
Oral LD50 Rat >2000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >2.04 mg/L 4 hr

Polycarboxylate salt (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >5.1 mg/L mist

Octylphenol ethoxylate (Trade Secret)
Oral LD50 Rat 2800 mg/kg

Titanium dioxide (Mixture)
Oral LD50 Rat >25 g/kg
Dermal LD50 Rabbit >10 g/kg
Inhalation LC50 Rat >6.82 mg/L

Silica, amorphous (7631-86-9)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >2.2 mg/L 1 h

Immediate Effects
May cause mild eye irritation.

Delayed Effects
May damage fertility or the unborn child.

Irritation/Corrosivity Data
May cause respiratory irritation. May cause mild skin irritation. May cause mild eye irritation.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

Chlorinated paraffins	Trade Secret
IARC:	Monograph 48 [1990] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3B (could be carcinogenic for man)
OSHA:	Present
Ethylene glycol	107-21-1
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
Clay compound	Trade Secret
ACGIH:	A2 - Suspected Human Carcinogen
IARC:	Monograph 100C [2012]; Monograph 68 [1997] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen (respirable size)
DFG:	Category 1 (causes cancer in man, alveola fraction)
OSHA:	Present (respirable size)
Titanium dioxide	Mixture
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 93 [2010]; Monograph 47 [1989] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3A (could be carcinogenic for man, inhalable fraction with the exception of ultra small particles)
OSHA:	Present
Silica, amorphous	7631-86-9
IARC:	Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable))

Germ Cell Mutagenicity
No data available.

Reproductive Toxicity
May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
This product contains crystalline silica, which is a known carcinogen. However, this component is bound by the polymer portion of the sealant. The only way this component would be released is through incineration. Therefore, this product is not considered a carcinogen.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Avoid release to the environment.

Component Analysis - Aquatic Toxicity

Polymer, ethyl acrylate and methacrylic acid	Mixture
Fish:	LC50 96 hr Pimephales promelas >1000 mg/L
Invertebrate:	EC50 48 hr Daphnia magna >1000 mg/L
Chlorinated paraffins	Trade Secret
Fish:	LC50 96 h Lepomis macrochirus >300 mg/L [static]; LC50 96 h Oncorhynchus mykiss >0.0109 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 94.5 - 271 mg/L [static]; LC50 96 h Lepomis macrochirus >0.1 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]
Invertebrate:	EC50 48 hr Daphnia magna 0.0059 mg/L
Ammonia	7664-41-7
Fish:	LC50 96 h Cyprinus carpio 0.44 mg/L; LC50 96 h Lepomis macrochirus 0.26 - 4.6 mg/L; LC50 96 h Lepomis macrochirus 1.17 mg/L [flow-through]; LC50 96 h Pimephales promelas 0.73 - 2.35 mg/L; LC50 96 h Pimephales promelas 5.9 mg/L [static];

	LC50 96 h Poecilia reticulata >1.5 mg/L; LC50 96 h Poecilia reticulata 1.19 mg/L [static]
Invertebrate:	LC50 48 h Daphnia magna 25.4 mg/L IUCLID
Ethylene glycol	107-21-1
Fish:	LC50 96 h Oncorhynchus mykiss 41000 mg/L; LC50 96 h Oncorhynchus mykiss 14 - 18 mL/L [static]; LC50 96 h Lepomis macrochirus 27540 mg/L [static]; LC50 96 h Oncorhynchus mykiss 40761 mg/L [static]; LC50 96 h Pimephales promelas 40000 - 60000 mg/L [static]; LC50 96 h Poecilia reticulata 16000 mg/L [static]
Algae:	EC50 96 h Pseudokirchneriella subcapitata 6500 - 13000 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna 46300 mg/L IUCLID
Polymer, vinyl acetate and vinyl acetate-acrylic	Mixture
Fish:	LC50 96 hr Oncorhynchis mykiss >1000 mg/L
Invertebrate:	EC50 48 hr Daphnia magna >100 mg/L
Methanol	67-56-1
Fish:	LC50 96 h Pimephales promelas 28200 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]; LC50 96 h Oncorhynchus mykiss 19500 - 20700 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 18 - 20 mL/L [static]; LC50 96 h Lepomis macrochirus 13500 - 17600 mg/L [flow-through]
4,4-Dimethyloxazolidine	Mixture
Fish:	LC50 96 hr Rainbow trout 95 mg/L [flow-through]
Silica, amorphous	7631-86-9
Fish:	LC50 96 h Brachydanio rerio 5000 mg/L [static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata 440 mg/L IUCLID

Invertebrate:	EC50 48 h Ceriodaphnia dubia 7600 mg/L IUCLID

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

IMDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Ammonia	7664-41-7
SARA 302:	500 lb TPQ

SARA 313:	1 % de minimis concentration (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)
CERCLA:	100 lb final RQ; 45.4 kg final RQ
OSHA (safety):	10000 lb TQ anhydrous); 15000 lb TQ solution, >44% Ammonia by weight)
SARA 304:	100 lb EPCRA RQ
Ethylene glycol	107-21-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Methanol	67-56-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ
Carbamic acid mixture	Trade Secret
CERCLA:	10 lb final RQ; 4.54 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Chlorinated paraffins	Trade Secret	No	Yes	No	No	No
Ammonia	7664-41-7	Yes	Yes	Yes	Yes	Yes
Ethylene glycol	107-21-1	Yes	Yes	Yes	Yes	Yes
Clay compound	Trade Secret	No	Yes	Yes	Yes	Yes
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes
Methanol	67-56-1	Yes	Yes	Yes	Yes	Yes
Carbamic acid mixture	Trade Secret	No	No	No	Yes	No
Titanium dioxide	Mixture	No	Yes	Yes	Yes	Yes
Silica, amorphous	7631-86-9	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects

Clay compound	Trade Secret
Carc:	carcinogen , 10/1/1988 (airborne particles of respirable size)
Methanol	67-56-1
Repro/Dev. Tox	developmental toxicity , 3/16/2012
Titanium dioxide	Mixture
Carc:	carcinogen , 9/2/2011 (airborne, unbound particles of respirable size)

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Ammonia	7664-41-7
	1 %
Ethylene glycol	107-21-1
	1 %
Clay compound	Trade Secret
	1 %
Methanol	67-56-1
	1 %
Octylphenol ethoxylate	Trade Secret
	1 %
Silica, amorphous	7631-86-9
	1 %

Component Analysis - Inventory
Polymer, ethyl acrylate and methacrylic acid (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Chlorinated paraffins (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ammonia (7664-41-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ethylene glycol (107-21-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Clay compound (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Limestone (1317-65-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	NSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Methanol (67-56-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

4,4-Dimethyloxazolidine (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Carbamic acid mixture (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Octylphenol ethoxylate (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

Titanium dioxide (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Silica, amorphous (7631-86-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 1* Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 1, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic

Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:
The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF RTA – 50 19 pgs

Safety Data Sheet

Material Name: RTA-50 **Product #: 304168**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
RTA-50

Synonyms
Adhesive/Liquid Portion of Two Part II Sealing System

Chemical Family
Adhesive

Product Use
Indoor, outdoor duct sealant

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199– 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Skin Sensitization - Category 1A
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 1 (liver, kidneys, central nervous system)
Specific Target Organ Toxicity - Single Exposure - Category 3
Specific Target Organ Toxicity - Repeated Exposure - Category 1

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
May cause allergic skin reaction
May damage fertility or the unborn child
Causes damage to organs
May cause respiratory irritation
Causes damage to organs through prolonged or repeated exposure

Precautionary Statement(s)

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapours/spray
Wash thoroughly after handling
Contaminated work clothing must not be allowed out of the workplace
Do not eat, drink or smoke when using this product

Response
If exposed: Call a POISON CENTER or doctor/physician
IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Specific treatment (see label)

Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations

Other Hazards
No additional information available.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Trade Secret	Polymer, vinyl acetate and vinyl acetate-acrylic	30-60
Trade Secret	De-foaming agent	0.1-1
Trade Secret	Nonylphenol polyethylene glycol ether	0.1-1
Trade Secret	Chlorinated paraffins	1-5
107-21-1	Ethylene glycol	1-5
Trade Secret	Clay compound	0.1-1
1317-65-3	Limestone	7-13
Mixture	4,4-Dimethyloxazolidine	0.1-1
Mixture	2-Amino-2-methyl-1-propanol mixture	0.1-1
Mixture	Titanium dioxide	0.1-1
Mixture	Polycarboxylate salt	0.1-1
Mixture	2-Butoxyethanol mixture	0.5-1.5
7779-90-0	Zinc phosphate	1-5
25265-77-4	2,2,4-Trimethylpentane-1,3-diol monoisobutyrate	0.1-1

Section 4 - FIRST AID MEASURES

Description of Necessary Measures
If exposed or concerned: Call a POISON CENTER or doctor/physician.

Inhalation
Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

Skin
Wash with plenty of soap and water. Remove contaminated clothing and wash it before reuse. If skin irritation or rash occurs, seek medical advice/attention.

Eyes
Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Ingestion
Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Most Important Symptoms/Effects

Acute
May cause allergic skin reaction. Causes damage to central nervous system, liver, kidneys. May cause respiratory irritation.

Delayed
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure:

Note to Physicians
Contains ethylene glycol.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Use carbon dioxide, regular dry chemical, regular foam or water.

Unsuitable Extinguishing Media
None known.

Special Hazards Arising from the Chemical
Slight fire hazard. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products Ooxides of carbon, oxides of nitrogen, hydrocarbons

Fire Fighting Measures
Remove product from area of fire. Stay upwind and keep out of low areas.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Absorb with earth, sand or other non-combustible material and transfer to container. Dike for later disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
This product contains crystalline silica, which is a known carcinogen: Do not grind or sand. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage, Including any Incompatibilities
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Store above 0 C. Store below 45 C. Do not cut, puncture, or weld on or near this container. Keep away from incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Ethylene glycol	107-21-1	
ACGIH:	100 mg/m3 Ceiling aerosol only	
Europe:	20 ppm TWA; 52 mg/m3 TWA	40 ppm STEL; 104 mg/m3 STEL
	Possibility of significant uptake through the skin	

Mexico:	100 mg/m3 Ceiling aerosol	
Clay compound	Trade Secret	
ACGIH:	0.025 mg/m3 TWA respirable fraction	
NIOSH:	0.05 mg/m3 TWA respirable dust	50 mg/m3 IDLH respirable dust
OSHA (US):	((30)/(%SiO2 + 2) mg/m3 TWA) total dust; ((250)/(%SiO2 + 5) mppcf TWA) respirable fraction; ((10)/(%SiO2 + 2) mg/m3 TWA) respirable fraction	
Mexico:	0.1 mg/m3 TWA LMPE-PPT respirable fraction	
Limestone	1317-65-3	
NIOSH:	10 mg/m3 TWA total dust; 5 mg/m3 TWA respirable dust	
OSHA (US):	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable fraction	
Mexico:	10 mg/m3 TWA LMPE-PPT	20 mg/m3 STEL [LMPE-CT]
Titanium dioxide	Mixture	
ACGIH:	10 mg/m3 TWA	
NIOSH:	5000 mg/m3 IDLH	
OSHA (US):	15 mg/m3 TWA total dust	
Mexico:	10 mg/m3 TWA LMPE-PPT as Ti	20 mg/m3 STEL [LMPE-CT] as Ti
2-Butoxyethanol mixture	Mixture	
ACGIH:	20 ppm TWA	
NIOSH:	5 ppm TWA; 24 mg/m3 TWA	700 ppm IDLH
	Potential for dermal absorption	
Europe:	20 ppm TWA; 98 mg/m3 TWA	50 ppm STEL; 246 mg/m3 STEL
	Possibility of significant uptake through the skin	

OSHA (US):	50 ppm TWA; 240 mg/m3 TWA	
	prevent or reduce skin absorption	
Mexico:	26 ppm TWA LMPE-PPT; 120 mg/m3 TWA LMPE-PPT	
	75 ppm STEL [LMPE-CT]; 360 mg/m3 STEL [LMPE-CT]	
	Skin - potential for cutaneous absorption	
Silica, amorphous	7631-86-9	
NIOSH:	6 mg/m3 TWA	3000 mg/m3 IDLH
OSHA (US):	20 mppcf TWA; ((80)/(% SiO2) mg/m3 TWA)	
Mica	12001-26-2	
ACGIH:	3 mg/m3 TWA respirable fraction	
NIOSH:	3 mg/m3 TWA (containing <1% Quartz) respirable dust	
	1500 mg/m3 IDLH (containing <1% Quartz)	
OSHA (US):	20 mppcf TWA (<1% Crystalline silica)	
Mexico:	3 mg/m3 TWA LMPE-PPT respirable fraction	

Biological limit value
There are no biological limit values for any of this product's components.

Engineering Controls
Provide adequate ventilation. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear safety glasses or safety goggles, with a faceshield, as appropriate.

Skin Protection
Wear appropriate work clothing.

Respiratory Protection
A NIOSH approved respirator with a dust, mist, and fume filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits or when symptoms have been observed that are indicative of overexposure.

Glove Recommendations
Wear appropriate gloves. Recommended material type: Hycron(R), neoprene, nitrile.

Protective Materials
Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white latex	**Physical State**	liquid
Odor	Slight,ammonia	**Color**	white
Odor Threshold	Not available	**pH**	8 - 9
Melting Point	Not available	**Boiling Point**	212 °F
Freezing point	Not available	**Evaporation Rate**	48 - 52 % volume
Boiling Point Range	Not available	**Flammability (solid, gas)**	Not available
Autoignition	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	17 mmHg (@ 20 °C)
Vapor Density (air=1)	<1	**Specific Gravity (water=1)**	Not available
Water Solubility	Soluble	**Partition coefficient: n-octanol/water**	Not available
Viscosity	3000 - 4000 cps	**Solubility (Other)**	Not available
Density	1.24 (relative)	**VOC**	130 g/L (water excluded)

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials
Strong acids, strong oxidizing agents

Hazardous decomposition products
Oxides of carbon, oxides of nitrogen, hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
May cause respiratory irritation.

Skin Contact
May cause allergic skin reaction. May cause mild skin irritation.

Eye Contact
May cause mild eye irritation.

Ingestion
Large doses may cause central nervous system stimulation followed by depression.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:

Polymer, vinyl acetate and vinyl acetate-acrylic (Trade Secret)
- Oral LD50 Rat >5000 mg/kg
- Dermal LD50 Rat >2000 mg/kg

De-foaming agent (Trade Secret)
- Oral LD50 >2000 mg/kg

Nonylphenol polyethylene glycol ether (Trade Secret)
- Oral LD50 Rat 2780 mg/kg

Chlorinated paraffins (Trade Secret)
- Oral LD50 Rat >4 g/kg

Ethylene glycol (107-21-1)
- Oral LD50 Rat 4700 mg/kg
- Dermal LD50 Rat 10600 mg/kg
- Inhalation LC50 Rat >200 mg/m3 vapor 4 hr

Clay compound (Trade Secret)
- Oral LD50 Rat 500 mg/kg

Limestone (1317-65-3)
- Oral LD50 Rat 6450 mg/kg

4,4-Dimethyloxazolidine (Mixture)
- Oral LD50 Rat 1370 mg/kg
- Dermal LD50 Rat >2000 mg/kg
- Inhalation LC50 Rat 1.1 mg/L 4 hr

2-Amino-2-methyl-1-propanol mixture (Mixture)
Oral LD50 Rat 2900 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Titanium dioxide (Mixture)
Oral LD50 Rat >25 g/kg
Dermal LD50 Rabbit >10 g/kg
Inhalation LC50 Rat >6.82 mg/L
Polycarboxylate salt (Mixture)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >5.1 mg/L total dust, mist
2-Butoxyethanol mixture (Mixture)
Oral LD50 Rat 1400 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat 450 ppm 4 h
Silica, amorphous (7631-86-9)
Oral LD50 Rat >5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Inhalation LC50 Rat >2.2 mg/L 1 h
Zinc borate (138265-88-0)
Oral LD50 Rat >10000 mg/kg
Dermal LD50 Rabbit >10000 mg/kg
Inhalation LC50 Rat >5 mg/L 4 hr
Zinc phosphate (7779-90-0)
Oral LD50 Rat >5000 mg/kg
2,2,4-Trimethylpentane-1,3-diol monoisobutyrate (25265-77-4)
Oral LD50 Rat 3200 mg/kg
Dermal LD50 Rat >15200 mg/kg
Inhalation LC50 Rat >2.73 mg/L

Immediate Effects
May cause allergic skin reaction. Causes damage to central nervous system, liver, kidneys. May cause respiratory irritation.

Delayed Effects
May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure:

Irritation/Corrosivity Data
May cause respiratory irritation. May cause mild skin irritation. May cause mild eye irritation.

Respiratory Sensitization
No data available.

Dermal Sensitization
May cause allergic skin reaction.

Component Carcinogenicity

Chlorinated paraffins	Trade Secret
IARC:	Monograph 48 [1990] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3B (could be carcinogenic for man)
OSHA:	Present
Ethylene glycol	107-21-1
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
Clay compound	Trade Secret
ACGIH:	A2 - Suspected Human Carcinogen
IARC:	Monograph 100C [2012]; Monograph 68 [1997] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen (respirable size)
DFG:	Category 1 (causes cancer in man, alveola fraction)
OSHA:	Present (respirable size)
Titanium dioxide	Mixture
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 93 [2010]; Monograph 47 [1989] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 3A (could be carcinogenic for man, inhalable fraction with the exception of ultra small particles)
OSHA:	Present
2-Butoxyethanol mixture	Mixture
ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC:	Monograph 88 [2006] (Group 3 (not classifiable))
DFG:	Category 4 (no significant contribution to human cancer)

Silica, amorphous	7631-86-9
IARC:	Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable))

Germ Cell Mutagenicity
No data available.

Tumorigenic Data
No data available

Reproductive Toxicity
May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
Central nervous system, liver, kidneys

Specific Target Organ Toxicity - Repeated Exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Additional Data
This product contains crystalline silica, which is a known carcinogen. However, this component is bound by the polymer portion of the sealant. The only way this component would be released is through incineration. Therefore, this product is not considered a carcinogen.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Avoid release to the environment.

Component Analysis - Aquatic Toxicity

Chlorinated paraffins	Trade Secret
Fish:	LC50 96 h Lepomis macrochirus >300 mg/L [static]; LC50 96 h Oncorhynchus mykiss >0.0109 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 94.5 - 271 mg/L [static]; LC50 96 h Lepomis macrochirus >0.1 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]
Invertebrate:	EC50 48 hr Daphnia magna 0.0059 mg/L

Ethylene glycol	107-21-1
Fish:	LC50 96 h Oncorhynchus mykiss 41000 mg/L; LC50 96 h Oncorhynchus mykiss 14 - 18 mL/L [static]; LC50 96 h Lepomis macrochirus 27540 mg/L [static]; LC50 96 h Oncorhynchus mykiss 40761 mg/L [static]; LC50 96 h Pimephales promelas 40000 - 60000 mg/L [static]; LC50 96 h Poecilia reticulata 16000 mg/L [static]
Algae:	EC50 96 h Pseudokirchneriella subcapitata 6500 - 13000 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna 46300 mg/L IUCLID
4,4-Dimethyloxazolidine	Mixture
Fish:	LC50 96 hr Rainbow trout 95 mg/L [flow-through]
2-Amino-2-methyl-1-propanol mixture	Mixture
Fish:	LC50 96 h Lepomis macrochirus 190 mg/L [static]
Algae:	EC50 72 h Desmodesmus subspicatus 520 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna 193 mg/L IUCLID
2-Butoxyethanol mixture	Mixture
Fish:	LC50 96 h Lepomis macrochirus 1490 mg/L [static]; LC50 96 h Lepomis macrochirus 2950 mg/L
Invertebrate:	EC50 48 h Daphnia magna >1000 mg/L EPA
Silica, amorphous	7631-86-9
Fish:	LC50 96 h Brachydanio rerio 5000 mg/L [static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata 440 mg/L IUCLID
Invertebrate:	EC50 48 h Ceriodaphnia dubia 7600 mg/L IUCLID

Zinc borate	138265-88-0
Fish:	LC50 96 hr Oncorhynchus mykiss 2.4 mg/L
Zinc phosphate	7779-90-0
Fish:	LC50 96 hr Oncorhynchus mykiss 0.14 - 0.26 mg/L
Invertebrate:	EC50 48 hr Daphnia magna 0.04 - 0.86 mg/L
2,2,4-Trimethylpentane-1,3-diol monoisobutyrate	25265-77-4
Fish:	LC50 96 h Pimephales promelas 30 mg/L
Algae:	EC50 72 h Pseudokirchneriella subcapitata 18.4 mg/L IUCLID

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Other Toxicity
No additional information available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

IMDG Information:
UN#: Not regulated

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Ethylene glycol	107-21-1
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ; 2270 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Chlorinated paraffins	Trade Secret	No	Yes	No	No	No
Ethylene glycol	107-21-1	Yes	Yes	Yes	Yes	Yes
Clay compound	Trade Secret	No	Yes	Yes	Yes	Yes
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes
2-Amino-2-methyl-1-propanol mixture	Mixture	No	Yes	No	Yes	Yes
Titanium dioxide	Mixture	No	Yes	Yes	Yes	Yes
2-Butoxyethanol mixture	Mixture	Yes	Yes	Yes	Yes	Yes
Silica, amorphous	7631-86-9	Yes	Yes	Yes	Yes	Yes
Mica	12001-26-2	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer

Clay compound	Trade Secret
Carc:	carcinogen , 10/1/1988 (airborne particles of respirable size)
Titanium dioxide	Mixture
Carc:	carcinogen , 9/2/2011 (airborne, unbound particles of respirable size)

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Ethylene glycol	107-21-1
	1 %
Clay compound	Trade Secret
	1 %
2-Butoxyethanol mixture	Mixture
	1 %
Silica, amorphous	7631-86-9
	1 %
Mica	12001-26-2
	1 %

Component Analysis - Inventory
Nonylphenol polyethylene glycol ether (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

Chlorinated paraffins (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Ethylene glycol (107-21-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Clay compound (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Limestone (1317-65-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	NSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

4,4-Dimethyloxazolidine (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

2-Amino-2-methyl-1-propanol mixture (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Titanium dioxide (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Hydroxyethyl cellulose (9004-62-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

2-Butoxyethanol mixture (Mixture)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Silica, amorphous (7631-86-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Mica (12001-26-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
No	DSL	No	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

Zinc borate (138265-88-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
No	No	No	No	No	No	No	No	No	Yes	Yes	No

Zinc phosphate (7779-90-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No

2,2,4-Trimethylpentane-1,3-diol monoisobutyrate (25265-77-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

HMIS Rating

Health: 2* Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

NFPA Ratings

Health: 2 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 22, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:
The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF Travel Tack
10 pgs

Safety Data Sheet

Material Name: Travel-Tack Non-Flam **Product #: 323821**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Travel-Tack Non-Flam

Synonyms
Water-based Adhesive

Chemical Family
Adhesive

Product Use
Water based Adhesive

Restrictions on Use
For industrial use only.

Manufacturer Information
Carlisle HVAC Products
900 Hensley Lane
Wylie, TX 75098
www.carlislehvac.com

Medical Emergency:
CHEMTREC (USA): (800) 424-9300

MSDS Assistance – 972-442-6545
Technical Assistance – 888-229-2199
Customer Service – 888-229-0199

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 1 (respiratory system, body, central nervous system, systemic toxicity, eyes)
Specific Target Organ Toxicity - Repeated Exposure - Category 1 (kidneys,respiratory system,eyes,central nervous system)

GHS Label Elements

Symbol(s)

Signal Word
Warning
Irritant by inhalation, ingestion, skin contact, and eye contact.

Hazard Statement(s)
Contains gas under pressure; may explode if heated
Causes skin irritation
Causes eye irritation
May cause respiratory irritation
May cause drowsiness or dizziness

Precautionary Statement(s)

Prevention
Pressurized container: Do not pierce or burn, even after use
Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed
Use personal protective equipment as required.
Avoid breathing dust/fume/gas/mist/vapours/spray
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice or attention.
IF ON SKIN: Wash with plenty of water. If skin irritation occurs, get medical advice or attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Potential Health Effects
Principal Routes of Exposure: Inhalation, skin absorption, eye contact

Acute Effects
Eyes
Contact with eyes may cause irritation. Direct contact with liquid or vapors may cause stinging, tearing, redness, swelling, and eye damage.
Skin
May cause skin irritation and /or dermatitis. Prolonged or repeated contact or exposure to vapors may cause redness, burning, and drying and cracking of the skin.
Inhalation
Breathing high concentrations of vapors may cause irritation of the nose and throat or signs of nervous system depression (i.e. – headache, nausea, drowsiness, dizziness, vomiting, loss of coordination and fatigue).

Ingestion
Ingestion may cause irritation of the digestive tract, nausea, vomiting, and signs of nervous system depression.

Chronic Effects
Avoid repeated exposure. May cause blood damage. Repeated contact may cause allergic reactions in very susceptible persons.

Aggravated Medical Conditions
Pre-existing eye, skin, or respiratory disorders may be aggravated by exposure to this product.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
75-09-2	Dichloromethane	50-75
811-97-2	1,1,1,2-TETRAFLUOROETHANE	12-25
124-38-9	CARBON DIOXIDE	5-15
115-10-6	DIMETHYL ETHER	1-7

Section 4 - FIRST AID MEASURES

General Advice
Show this safety data sheet to the doctor in attendance

Inhalation
Move to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen and get immediate medical attention.

Skin
Wash exposed skin with soap and water. Remove contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.

Eyes
Flush with plenty of cool water for at least 15 minutes, holding eyelids apart for thorough irrigation. If irritation persists, get immediate medical attention.

Ingestion
Do NOT induce vomiting. If swallowed, get medical attention. If vomiting occurs, keep head lower than hips to prevent aspiration.

Note to Physicians
Treat symptomatically

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Carbon dioxide, dry chemicals, foam. Water may be helpful in keeping adjacent containers cool; avoid spreading the liquid with water used for cooling. Water-based sprinkler systems may help contain larger fires.

Special Hazards Arising from the Chemical
Closed containers may rupture if exposed to fire or extreme heat. May produce toxic fumes if burning.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8. Remove all sources of ignition.

Methods and Materials for Containment and Cleaning Up
Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

Environmental Precautions
Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Wear appropriate personal protective equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from open flames, hot surfaces and sources of ignition.

Conditions for Safe Storage, Including any Incompatibilities
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from extremes of heat or cold. Keep in properly labeled containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Dichloromethane	75-09-2
ACGIH TLV:	50
OSHA PEL:	25
1,1,1,2-TETRAFLUOROETHANE	811-97-2
ACGIH TLV:	1000
OSHA PEL:	Not Established
CARBON DIOXIDE	124-38-9
ACGIH TLV:	30000
OSHA PEL:	5000
DIMETHYL ETHER	115-10-6
OSHA PEL:	Not Established
ACGIH TLV:	1000

Engineering Controls
Ensure adequate ventilation, especially in confined areas.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear safety glasses or safety goggles, or full faceshield.

Skin Protection
Protective gloves and impervious clothing.

Respiratory Protection
In operations where exposure limits are exceeded, use a NIOSH approved respirator that has been selected by a technically qualified person for the specific work conditions.

Hygiene Practices
Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Wash thoroughly after handling. When using, do not eat, drink or smoke.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Not available	**pH**	Not available
Odor	Not available	**Boiling Point**	-320.00°F [-196°C]
Odor Threshold	Not available	**Evaporation Rate**	Faster than nBuAc
Autoignition	Not data	**Flammability (solid, gas)**	Not data
Bulk Density (lb/gal)	9.48	**Flash Point**	Not available
Vapor Density (air=1)	Heavier than air	**Decomposition**	Not data
Water Solubility	Insoluble	**Vapor Pressure**	Not available
Viscosity	Not available	**Specific Gravity (water=1)**	1.138
VOC	~65 g/L (water excluded) ~23 g/L	**Non-Volatile (wt%)**	20.20

Other Information
No additional information available.

Section 10 - STABILITY AND REACTIVITY

Chemical Stability
Stable under normal conditions of use.

Possibility of Hazardous Reactions
None under normal conditions of use.

Conditions to Avoid
Keep away from open flames, hot surfaces, static electricity and sources of ignition. Avoid extremes of heat or cold.

Incompatible Materials
Strong acids,strong bases, strong oxidizing agents

Hazardous decomposition products
Thermal decomposition can lead to release of irritating gases and vapors. Carbon monoxide, carbon dioxide, smoke, and other unidentified organic compounds may be formed during combustion.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Inhalation, skin absorption, eye contact

Acute and Chronic Toxicity
No data

Irritation/Corrosivity Data
No data

Sensitization
No data

Corrosivity
No data

Component Carcinogenicity

Dichloromethane	Trade Secret
IARC:	Listed
NTP:	Not Listed
OSHA:	Listed

Mutagenicity
No data

Reproductive Toxicity
No data

Specific Target Organ Toxicity - Single Exposure
No data

Specific Target Organ Toxicity - Repeated Exposure
No data

Aspiration hazard
No data

Section 12 - ECOLOGICAL INFORMATION

Aquatic Toxicity
Acute and prolonged Toxicity to Fish: No data
Acute Toxicity to Aquatic Invertebrates: No data
Environmental Fate and Pathways: No data

Persistence and Degradability
No data.

Bioaccumulative Potential
No data

Mobility in soil
No data

Other adverse effects
No data

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable local, state, and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Proper shipping name: CHEMICAL UNDER PRESSURE, N.O.S. (1,1,1,2 TETRAFLUOROETHANE, NITROGEN)
Hazard Class: 2.2
UN#: UN3500
ICAO/IATA: Contact the preparer for further information.
IMDG/MO Information: Contact the preparer for further information.

Section 15 - REGULATORY INFORMATION

US TSCA: Yes – All components are listed or exempt

U.S. Federal Regulations
SARA Section 313 : Section 313 OF Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). If listed below, this product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical Designation	Cas No.	% Weight
Dichloromethane	75-09-2	50-75

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPS) (see 40 CFR 61)

Chemical Designation	Cas No.	% Weight
Dichloromethane	75-09-2	50-75

State Regulations

California Proposition 65

This product contains the following substance(s) known to the state of California to cause cancer or reproductive harm:

Chemical Designation	Cas No.
Dichloromethane	75-09-2
Ethyl benzene	100-41-4

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 2 Fire: 1 Reactivity: 0 B
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: May 21, 2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability

Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:

The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

HF 102
6 pages

HARDCAST

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: VersaGrip 102
Synonyms: Water-Based Mastic

Manufacturer/Supplier
Carlisle Coatings & Waterproofing Incorporated
900 Hensley Lane
Wylie, TX 75098
Internet Address:
http://www.ccwcompanies.com/

Phone Numbers
Medical Emergency:
CHEMTREC (USA): (800) 424-9300
CHEMTREC (International):
MSDS Assistance: (972) 442-6545
Fax On Demand: NA
Technical Assistance: (888) 229-2199
Customer Service: (888) 229-0199

2. COMPONENT INFORMATION

Component	CAS No.	Percent Range	Hazardous in Blend
Ethylene Glycol	107-21-1	0.5 - 2	
Methanol	67-56-1	0.2 - 2	

This product is not hazardous according OSHA 29 CFR 1910.1200.

Hazards:
Flammable/Combustible No **Acute Toxin** No **Chronic Toxin** No **Carcinogen** No

Pressure No **Reactive** No **Exposure Limit** ___ **Target Organ** ___ **Other** ___

2A. OTHER INGREDIENTS Greater than 3%

Component	CAS No.
Latex Co-polymer	Mixture
Calcium Carbonate	1317-65-3
Hydrated Alumina	21645-51-2
Chlorinated Paraffin	63449-39-8 Blend

3. HAZARDS IDENTIFICATION

Emergency and Hazards Overview:
May cause moderate irritation to eyes. May be harmful if swallowed. Read and understand all health and safety information on the product label and Material Safety Data Sheet before use.

Ratings
Health 1 **Flammability** 0 **Reactivity** 0

Primary Route of Exposure: Skin x Inhalation x Eye x Ingestion x

Health Effect Information

Eye Contact: May cause eye irritation if wiped or rubbed into eyes.

Skin Contact: May cause mild skin irritation on prolonged or repeated contact.

Inhalation: Breathing high concentrations of vapors may cause nausea & irritation of nose, throat, & respiratory tract. Respiratory symptoms associated with pre-existing lung disorders may be aggravated by exposure to this material.

Ingestion: Ingestion of large quantity may cause initial central nervous system stimulation, followed by

depression.

Medical Conditions Aggravated by Exposure: Prolonged exposure to vapors could aggravate pre-existing disorders in lungs, kidney and liver.

4. FIRST AID INFORMATION

Eye Contact: Flush with water for 15 minutes. Get medical attention immediately.

Skin Contact: Wipe off and wash skin with soap and water. Promptly remove contaminated clothing and wash before reuse.

Inhalation: Remove to fresh air. If breathing has stopped, start artificial respiration. Oxygen may be administered. Consult physician immediately

Ingestion: Do not induce vomiting unless directed to do so by a physician. Consult a physician immediately.

Notes to Physician: This product contains ethylene glycol, Hexahydro-1, 3,5-triethyl-s-triazine (not in a reportable amount).

5. FIRES AND EXPLOSION INFORMATION

Flammable Properties

Flash Point: No flash to boiling — **Test Method:** Closed cup
Flame extension: NA — **Test Method:** NA
Flammable Limits in Air
Upper Percent: NA
Lower Percent: NA
Auto ignition Temperature: NA — **Test Method:** NA

NFPA Classification: H 1 F 0 R 0

Extinguishing Media: CO_2, foam, dry chemical or water spray.

Fire Fighting Measures

Special Fire Fighting Procedures and Equipment: Firemen must wear full-face air-supplied masks and full protective clothing.

Unusual Fire and Explosion Conditions: This product is not sensitive to physical shock or static discharge. Exposure of closed container to temperatures above the boiling point could cause pressure buildup and container rupture.

Hazardous Combustion By-Products: CO, CO_2, unburned hydrocarbons, or nitrous oxides.

6. ACCIDENTAL RELEASE MEASURES

Personnel Safeguards: Evacuate non-essential personnel to safe areas. Clean-up responders should wear proper protective clothing and gloves before entering the affected area.

Regulatory Notifications: Certain component of this product is defined as hazardous according to U.S. EPA. Spill reporting requirements and reportable quantities vary by region. Consult all applicable state and local regulations. For Canada, observe all precautions noted above.

Containment and Clean up: Prevent product from entering drinking water supplies or streams. Observe above precautions, collect liquid with inert, noncombustible material and remove for disposal.

7. HANDLING AND STORAGE INFORMATION

Handling: Normal use condition doesn't produce respirable Silica. However, sanding, grinding, and burning might release respirable Silica. Keep out of reach of children. Launder contaminated clothing. Wash hands with soap and water after use, especially before eating or drinking.

Storage: Store in a dry, well ventilated environment away from heat, above 35 deg F and below 110 deg F. Keep containers closed when not in use. Do not pressurize, cut weld or grind containers.

Empty Container Warnings

Drums: Drums may be reused after wash.

Plastic: Plastic containers may be reused after wash.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION INFORMATION

Exposure Limits and Guidelines

Component	CAS No.	Exposure Limit
Methanol	67-56-1	200 ppm OSHA PEL 200 ppm ACGIH TWA, 250 ppm STEL
Ethylene Glycol	107-21-1	50 ppm OSHA PEL/Ceiling

Personal Protective Equipment

Eye/Face Protection: Wear safety goggles or face shield. Contact lenses should not be worn.

Skin Protection: Use protective rubber gloves (Hycron, neoprene, or nitrile).

Respiratory Protection: Provide adequate ventilation to maintain vapors below PEL/TWA. If vapor levels are exceeded, use NIOSH approved respirator, both during and immediately after application, until vapor levels are below limits.

Personal Hygiene: Avoid rubbing eyes during handling. Use good personal hygiene practices to avoid incidental ingestion.

Engineering Controls / Work Practices

Ventilation: Provide local exhaust or area ventilation to maintain concentration of vapors below PEL/TWA.

Other: Source of clean water should be available in the work area for flushing eyes and skin. Wash thoroughly with soap and water after use and before eating.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White/Gray Mastic	**Vapor Pressure:** 17 mm Hg @ 20°C
Odor: Typical latex with slight ammonia odor	**Vapor Density (air=1):** <air
Physical state: Mastic	**Percent Volatile by Weight:** 24 – 28
pH: 8.0 – 9.0	**Volatile Organic Content:** 45 gpl (water excluded)
DOT Corrosivity: NA	**Molecular Weight:** NA
Boiling Point: 212°F	**Average Carbon Number:** NA
Melting Point: NA	**Viscosity @ 77 F:** Thixotropic
Specific Gravity: 1.39	
Pour Point: NA	
Solubility in Water: Miscible with water	
Octanol / Water Coefficient: Log K_{ow} = NA	

10. STABILITY AND REACTIVITY INFORMATION

Chemical Stability: Stable

Conditions to Avoid: Avoid extreme heat, fire and temperature.

Incompatible Materials to Avoid: Avoid strong acids, strong oxidizers.

11. TOXICOLOGICAL INFORMATION (will only print available data)

Ethylene Glycol
Primary Eye Irritation: Irritating
Primary Skin Irritation: NA
Acute Dermal Toxicity: Product toxicity has not been determined.
Subacute Dermal Toxicity: NA
Dermal Sensitization: NA
Inhalation Toxicity: Product toxicity has not been determined.
Inhalation Sensitization: NA
Oral Toxicity: Product toxicity has not been determined. Following are component data:
LD_{50}, Ethylene Glycol: Rat 4,000 mg/kg
Mutagenicity: NA
Carcinogenicity: NA
Reproductive Toxicity: Product toxicity has not been determined. Following are component data:
Ethylene Glycol: Pregnant Rat 1.25g/kg and above: increased malformed fetus
Pregnant Mice 750 mg/kg and above: increased malformed fetus
Teratogenicity: NA
Immunotoxicity: NA
Neurotoxicity: NA
No other toxicological information available

12. ECOLOGICAL INFORMATION

Ethylene Glycol
Aquatic Toxicity: Not known
Terrestrial Toxicity: Not known
Chemical Fate and Transport: Not known
No other ecological information available

13. DISPOSAL INFORMATION

Regulatory Information: Consult all regulations (federal, state, provincial, local etc.) or a qualified waste disposal firm when characterizing waste for disposal.

Waste Disposal Methods: Recover free liquid. Absorb residue and dispose of according to local, state and Federal EPA regulation. Empty container: may contain explosive vapors. Do Not cut, puncture or weld on or nearby.

14. TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT)
Highway / Rail: Not regulated by DOT

The DOT description is provided to assist in the proper shipping classification of this product and may not be suitable for all shipping descriptions.

Other: No other information available.

15. REGULATORY INFORMATION

Regulatory Lists

U.S. TSCA Inventory: All components of this material are on the US TSCA Inventory or exempt from listing on the TSCA Inventory.

Sara Section 313: This product contains the following Sara, Title III, Section 313 Chemicals:

Chemical	CAS Number	Percent in Product
Methanol	67-56-1	0.2 - 2
Ethylene Glycol	107-21-1	0.5 - 2

IARC Group: NA

Regulatory Lists Searched

This product contains a mixture of one or more components found on the following State List at or above OSHA de minimis quantities

Health & Safety: NA
Environmental: NA
International: NA
State: FL, MA, MN, PA, NJ, WA
National Inventories: NA

SARA 311 / 312 Categories (For the chemicals above)
Acute: Yes **Chronic:** Yes **Fire:** Yes **Pressure:** No **Reactive:** No
Regulated: No

California Proposition 65 Information: Warning! None in the list

Canadian WHMIS Classification

Methanol

Class: Class B2 and D2B

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

Canadian Environmental Protection Act (CEPA)

All reportable chemical substance is listed on the Domestic Substances List (DSL) or otherwise complies with CEPA new substance notification requirements.

National Pollution Release Inventory (NPRI)

This product contains the following chemical subject to the reporting requirements of the CEPA subsection 16(1), NPRI.

Chemical	CAS Number	Percent in Product
Methanol	67-56-1	0.2 – 2
Ethylene Glycol	107-21-1	0.5 – 2

Other Regulations: No other information available.

16. OTHER INFORMATION

Health and Environmental Label Language

All ingredients contained in this product are included on the US EPA Toxic Substances Control Act (TSCA) inventory or exempt from listing on the TSCA inventory. All ingredients contained in this product comply with the requirements of the Canadian Environmental Protection Act (CEPA) and are listed on the Domestic Substance List (DSL) or Non-Domestic Substance List (NDSL)

MSDS Revisions

Previous Version Date: 06/15/07

Section

Old Information:

New Information: Revision to Section 2A

Prepared By: R&D Department Date: 07/01/08

Disclaimer of Warranty: The information contained herein is based upon data and information available to us, and reflects our best professional judgment. This product may be formulated in part with components purchased from other companies. In many instances, especially when proprietary or trade secret materials are used, CCWI Company must rely upon the hazard evaluation of such components submitted by that product's manufacturer or importer. No warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of such data or information. The results to be obtained from the use thereof, or that any such use does not infringe any patent, since the information contained herein may be applied under conditions of use beyond our control and with which we may be unfamiliar, we do not assume responsibility for the results of such application. This information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the material for his particular use.

IPG 2795

2 pages

WELD-ON®

GHS SAFETY DATA SHEET

WELD-ON® 795™ Low VOC PVC Plastic Pipe Cement

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 795™ Low VOC PVC Plastic Pipe Cement

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H335: May cause respiratory irritation	P280: Wear protective gloves/protective clothing/eye protection/face protection
H336: May cause drowsiness or dizziness	P337+P313: Get medical advice/attention
H351: Suspected of causing cancer	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	35 - 45
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 15
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	5 - 15
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	5 - 15

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Blue or clear, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.94 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A, VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	**Target Organs**
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Symbols:	F, Xi	
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking
	R36/37: Irritating to eyes and respiratory system.	R67: Vapors may cause drowsiness and dizziness
Safety Phrases:	S2: Keep out of the reach of children	S25: Avoid contact with eyes.
	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/21/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

JQ 399-100

2 PAGES

GHS SAFETY DATA SHEET

Weld-On® 600™ Clear Adhesive

Date Revised: MAY 2015
Supersedes: APR 2015

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Weld-On® 600™ Clear Adhesive

PRODUCT USE: Solvent based adhesive for plastic drainage and HVAC systems

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	Category 1	Flammable Liquid	Category 2
Skin Irritation:	Category 2	Chronic Toxicity:	Category 1		
Skin Sensitization:	NO				
Eye:	Category 2				
Aspiration Toxicity:	Category 1				

GHS LABEL:

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 2A
CLASS D, DIVISION 1B

Hazard Statements

H225: Highly flammable liquid and vapor
H304: May be fatal if swallowed and enters airways
H315: Causes skin irritation
H336: May cause drowsiness or dizziness
H340: May cause genetic defects
H350: May cause cancer
H361: Suspected of damaging fertility or the unborn child
H373: May cause damage to organs through prolonged or repeated exposure
H400: Very toxic to aquatic life
H410: Very toxic to aquatic life with long lasting effects

Precautionary Statements

P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P261: Avoid breathing dust/fume/gas/mist/vapors/spray
P280: Wear protective gloves/protective clothing/eye protection/face protection
P337+P313: Get medical advice/attention
P403+P233: Store in a well ventilated place. Keep container tightly closed
P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight	
Methylene Chloride * # (dichloromethane)	75-09-2	200-838-9	17-2119926076-39-0000	20 - 25	
Solvent Naphtha	64742-89-8	265-192-2	Under development	20 - 25	(Component of Hexasol Mixture)
n-hexane *	110-54-3	203-777-6	Under development	20 - 25	(Component of Hexasol Mixture)
Cyclohexane *	110-82-7	203-806-2	Under development	5 - 10	(Component of Hexasol Mixture)
Heptane	142-82-5	205-563-8	Under development	3 - 7	(Component of Hexasol Mixture)

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates that this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Ingestion, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result indrowsiness, nausea, dizziness, or headache.
Eye Contact: May cause mild eye irritation
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: IARC Classification 2B (Methylene Chloride), 1B (Solvent Naphtha)
GHS Classification Carc2 (Methylene Chloride), Carc1B (Solvent Naphtha)

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrocarbons, hydrogen chloride and smoke

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

	HMIS	NFPA	
Health	3	3	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	H		3-Serious
			4-Severe

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable vessel.
Materials not to be used for clean up: Plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials such as: caustics, amines, acids, and strong oxidizers.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL
Methylene Chloride (dichloromethane)	50 ppm	None	25 ppm skin
Solvent Naphtha	300 pp	None	300 ppm
n-hexane*	50 ppm	None	500 ppm
Cyclohexane*	100 ppm	None	300 ppm
Heptane	400 ppm	500 ppm	500 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.

Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. PVA coated rubber gloves should be used for frequent immersion.
Use of latex or nitrile gloves or solvent-resistant barrier cream should provide adequate protection for normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

Weld-On® 600™ Clear Adhesive

Date Revised: MAY 2015
Supersedes: APR 2015

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, regular syrupy liquid		
Odor:	Naptha	**Odor Threshold:**	250 ppm based on MeCl
pH:	Not Applicable		
Melting/Freezing Point:	Not available	**Boiling Range:**	64°C (147°F) to 89°C (190°F) based on Hexasol Mixture
Boiling Point:	64°C (147°F) based on Hexasol Mixture		
Flash Point:	-18°C (0°F) TCC based on Hexasol Mixture	**Evaporation Rate:**	8.8 (BUAC = 1) based on Hexasol Mix
Specific Gravity:	0.890 @23°C (73°F)	**Flammability:**	Category 2
Solubility:	Not available	**Flammability Limits:**	**LEL:** 1% based on Hexasol Mixture
Partition Coefficient n-octanol/water:	Not Available		**UEL:** 7% based on Hexasol Mixture
Auto-Ignition Temperature:	232°C (450°F) based on Hexasol	**Vapor Pressure:**	138 mm Hg @ 68°C (154°F) based on Hexasol Mixture
Decomposition Temperature:	Not available		
VOC Content:	≤ 400 g/L	**Vapor Density:**	3.2 (Air = 1)

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrocarbons and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	STOT
Methylene Chloride (dichloromethane)	Oral: 1500- 2500 mg/kg (rat) , Dermal: Not Determined	Inhalation 7 hrs. >10000 PPM (rat)	SE3
Solvent Naphtha	Oral: 8000 mg/kg (rat), Dermal 4000mg/kg (rabbit)	Inhalation 4 hrs. 3400 mg/m^3 (rat)	
n-hexane	Oral: 25,000 mg/kg (rat), Dermal: 1300 mg/kg (rabbit)	Inhalation 4 hrs. 48,000 mg/m^3 (rat)	SE3 / RE2
Cyclohexane	Oral: 29,820 mg/kg (rat), Dermal: 2000 mg/kg (rabbit)	Inhalation 4 hrs. 103,000 PPM (rat)	SE3
Heptane	Oral: 15,000 mg/kg (rat), Dermal: 2000 mg/kg (rabbit)	Inhalation 50,100 mg/m^3 (rat)	SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Category 2	Not Established	Category 1B	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	Category 1
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 400 g/l.
Degradability:	Not Available
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	6.1
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping

DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION

TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant, Carc. Cat. 2
Symbols: F, Xn, N
Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

Risk Phrases:
- R11: Highly flammable.
- R38: Irritating to skin.
- R45: May cause cancer.
- R46: May cause heritable genetic damage.
- R62: Possible risk of impaired fertility.
- R65: Harmful: may cause lung damage if swallowed.
- R67: Vapors may cause drowsiness and dizziness.
- R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.
- R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
- S2: Keep out of the reach of children.
- S9: Keep container in a well-ventilated place.
- S16: Keep away from sources of ignition.
- S25: Avoid contact with eyes.
- S29: Do not empty into drains.
- S33: Take precautionary measures against static discharges.
- S36/37: Wear suitable protective clothing and eye/face protection.
- S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S53: Avoid exposure - obtain special instructions before use.
- S60: This material and its container must be disposed of as hazardous waste.
- S61: Avoid release to the environment. Refer to special instructions/safety data sheet.
- S62: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

SECTION 16 - OTHER INFORMATION

Specification Information:

Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	5/28/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent based adhesive for plastic drainage and HVAC systems	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG 704 2pgs

WELD-ON

GHS SAFETY DATA SHEET

WELD-ON® 704™ Low VOC PVC Plastic Pipe Cement

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 704™ Low VOC PVC Plastic Pipe Cement

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL:

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	10 - 30
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	20 - 40
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	15 - 35
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	5 - 15

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	0-Minimal
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

WELD-ON® 704™ Low VOC PVC Plastic Pipe Cement

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear or gray, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.920 @23°C (73°F)	**Flammability Limits:**	LEL: 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		UEL: 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD50	LC50	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m³ (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m³ (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m³ (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	**Ingredient Listings:** USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Symbols:	F, Xi	
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking
	R20-Harmful by inhalation.	R67: Vapors may cause drowsiness and dizziness
	R36/37: Irritating to eyes and respiratory system.	
Safety Phrases:	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.
	S25: Avoid contact with eyes.	S46: If swallowed, seek medical advise immediately and show this container or label.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/20/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG-705 2PGS

WELD-ON

GHS SAFETY DATA SHEET

WELD-ON® 705™ Low VOC Cements for PVC Plastic Pipe

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 705™ Low VOC Cements for PVC Plastic Pipe

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	25 - 50
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 36
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	15 - 30

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	0-Minimal
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion. Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear or gray, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	66°C (151°F) to 156°C (313°F)
Boiling Point:	66°C (151°F) Based on first boiling component: THF	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on THF	**Flammability:**	Category 2
Specific Gravity:	0.9611 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 11.8% based on THF
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	129 mm Hg @ 20°C (68°F)based on THF
Auto-Ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 500 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 500 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant, Carc. Cat. 2

Symbols: F, Xi

Risk Phrases:
R11: Highly flammable.
R20: Harmful by inhalation.
R36/37: Irritating to eyes and respiratory system.
R66: Repeated exposure may cause skin dryness or cracking
R67: Vapors may cause drowsiness and dizziness

Safety Phrases:
S9: Keep container in a well-ventilated place.
S16: Keep away from sources of ignition - No smoking.
S25: Avoid contact with eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33: Take precautionary measures against static discharges.
S46: If swallowed, seek medical advise immediately and show this container or label.

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSInfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/20/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG 711 2pgs

GHS SAFETY DATA SHEET

WELD-ON® 711™ Low VOC PVC Plastic Pipe Cements

Date Revised: JUL 2015
Supersedes: APR 2015

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 711™ Low VOC PVC Plastic Pipe Cements

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL:

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	40 - 50
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 15
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	9 - 18
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	3 - 11

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.
Likely Routes of Exposure: Inhalation, Eye and Skin Contact
Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.
Chronic (long-term) effects: Category 2 Carcinogen
Chronic (long-term) effects (MEK): Low level chronic exposure has been shown to cause decreased memory and impairment of the central nervous system.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

WELD-ON® 711™ Low VOC PVC Plastic Pipe Cements

Date Revised: JUL 2015
Supersedes: APR 2015

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Gray, heavy syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.966 @23°C (73°F)	**Flammability Limits:**	LEL: 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		UEL: 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Heavy bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Symbols:	F, Xi	
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking
	R20-Harmful by inhalation.	R67: Vapors may cause drowsiness and dizziness
	R36/37: Irritating to eyes and respiratory system.	
Safety Phrases:	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.
	S25: Avoid contact with eyes.	S46: If swallowed, seek medical advise immediately and show this container or label.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	7/15/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG 714 2pgs

WELD-ON

GHS SAFETY DATA SHEET

WELD-ON® 714™ Low VOC Cement for CPVC Plastic Pipe

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 714™ Low VOC Cement for CPVC Plastic Pipe

PRODUCT USE: Low VOC Solvent Cement for CPVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 2B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P337+P313: Get medical advice/attention
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	
EUH066: Repeated exposure may cause skin dryness or cracking	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	30 - 60
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 25
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	5 - 20

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.
Likely Routes of Exposure: Inhalation, Eye and Skin Contact
Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.
Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 33°C (90°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE/PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

GHS SAFETY DATA SHEET

WELD-ON® 714™ Low VOC Cement for CPVC Plastic Pipe

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Orange or gray, heavy syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	66°C (151°F) to 156°C (313°F)
Boiling Point:	66°C (151°F) Based on first boiling component: THF	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on THF	**Flammability:**	Category 2
Specific Gravity:	0.995 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 11.8% based on THF
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	129 mm Hg @ 20°C (68°F)based on THF
Auto-Ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Heavy bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 490 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 490 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia	
Symbols:	F, Xi	AICS, Korea ECL/TCCL, Japan MITI (ENCS)	
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking	
	R36/37: Irritating to eyes and respiratory system.	R67: Vapors may cause drowsiness and dizziness	
Safety Phrases:	S2: Keep out of the reach of children	S25: Avoid contact with eyes.	
	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.	
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.	

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European
E-mail address:	<EHSinfo@ipscorp.com>	Directive on RoHS (Restriction of Hazardous Substances).
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/8/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for CPVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG 721 2pgs

WELD-ON

GHS SAFETY DATA SHEET

Weld-On® 721™ Low VOC Cement for PVC Plastic Pipe

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Weld-On® 721™ Low VOC Cement for PVC Plastic Pipe

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

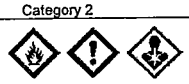
EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL:



Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H335: May cause respiratory irritation	P280: Wear protective gloves/protective clothing/eye protection/face protection
H336: May cause drowsiness or dizziness	P337+P313: Get medical advice/attention
H351: Suspected of causing cancer	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	40 - 55
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 15
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	10 - 20
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	3 - 15

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon; hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.

Personal Protective Equipment (PPE):

Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

Date Revised: APR 2015
Supersedes: NOV 2014

Weld-On® 721™ Low VOC Cement for PVC Plastic Pipe

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Blue, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.955 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-Ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m³ (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m³ (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m³ (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)	
Symbols:	F, Xi		
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking	
	R36/37: Irritating to eyes and respiratory system.	R67: Vapors may cause drowsiness and dizziness	
Safety Phrases:	S2: Keep out of the reach of children	S25: Avoid contact with eyes.	
	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.	
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.	

SECTION 16 - OTHER INFORMATION

Specification Information:

Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSInfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/20/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IP6725 2pgs.

WELD-ON®

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® 725™ Wet 'R Dry™ Low VOC Cement for PVC Plastic Pipe

Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 725™ Wet 'R Dry™ Low VOC Cement for PVC Plastic Pipe

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL:

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H335: May cause respiratory irritation	P280: Wear protective gloves/protective clothing/eye protection/face protection
H336: May cause drowsiness or dizziness	P337+P313: Get medical advice/attention
H351: Suspected of causing cancer	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	45 - 60
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	4 - 15
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	14 - 25

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® 725™ Wet 'R Dry™ Low VOC Cement for PVC Plastic Pipe Supersedes: NOV 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Aqua Blue, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	1 ppm (Acetone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 80°C (176°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.924 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.4% based on MEK
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-Ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 510g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia
Symbols:	F, Xi	AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking
	R36/37: Irritating to eyes and respiratory system.	R67: Vapors may cause drowsiness and dizziness
Safety Phrases:	S2: Keep out of the reach of children	S25: Avoid contact with eyes.
	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European
E-mail address:	<EHSInfo@ipscorp.com>	Directive on RoHS (Restriction of Hazardous Substances).
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/21/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

#PG 771 2pgs

GHS SAFETY DATA SHEET

WELD-ON® 771™ Low VOC Pipe Cement for ABS Plastic Pipe

Date Revised: APR 2015
Supersedes: OCT 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 771™ Low VOC Pipe Cement for ABS Plastic Pipe

PRODUCT USE: Low VOC Solvent Cement for ABS Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

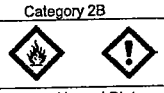
EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2B				

GHS LABEL:



Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H336: May cause drowsiness or dizziness	P280: Wear protective gloves/protective clothing/eye protection/face protection
EUH 066: Repeated exposure may cause skin dryness or cracking.	P337+P313: Get medical advice/attention
	P403+P233: Store in a well ventilated place. Keep container tightly closed
	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	35 - 50
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	10 - 20

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.
Likely Routes of Exposure: Inhalation, Eye and Skin Contact
Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.
Chronic (long-term) effects: None known to humans

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon and smoke

	HMIS	NFPA	0-Minimal
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON® 771™ Low VOC Pipe Cement for ABS Plastic Pipe

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Milky or yellow, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	1 ppm (Acetone)
pH:	Not Applicable		
Melting/Freezing Point:	-95°C (-139°F) Based on first melting component: Acetone	**Boiling Range:**	56°C (133°F) to 80°C (176°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	>1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) T.C.C. based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.886 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.4% based on MEK
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F): Acetone
Auto-Ignition Temperature:	404°C (759°F): MEK	**Vapor Density:**	> 2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 325 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 325 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia
Symbols:	F, Xi	AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking
	R36/37: Irritating to eyes and respiratory system.	R67: Vapors may cause drowsiness and dizziness
Safety Phrases:	S2: Keep out of the reach of children	S25: Avoid contact with eyes.
	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department Issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European
E-mail address:	<EHSinfo@ipscorp.com>	Directive on RoHS (Restriction of Hazardous Substances).
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/7/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for ABS Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG 773 2pgs

GHS SAFETY DATA SHEET

WELD-ON® 773™ Low VOC Pipe Cement for ABS Plastic Pipe

Date Revised: APR 2015
Supersedes: OCT 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 773™ Low VOC Pipe Cement for ABS Plastic Pipe

PRODUCT USE: Low VOC Solvent Cement for ABS Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800-255-3924,+1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800-255-3924,+1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2B				

GHS LABEL:

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H336: May cause drowsiness or dizziness	P280: Wear protective gloves/protective clothing/eye protection/face protection
EUH 066: Repeated exposure may cause skin dryness or cracking.	P337+P313: Get medical advice/attention
	P403+P233: Store in a well ventilated place. Keep container tightly closed
	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	40 - 55
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	10 - 15

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Low level chronic exposure has been shown to cause decreased memory and impairment of the central nervous system.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE/PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion. Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON®

GHS SAFETY DATA SHEET

WELD-ON® 773™ Low VOC Pipe Cement for ABS Plastic Pipe

Date Revised: APR 2015
Supersedes: OCT 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	1 ppm (Acetone)
pH:	Not Applicable		
Melting/Freezing Point:	-95°C (-139°F) Based on first melting component: Acetone	**Boiling Range:**	56°C (133°F) to 80°C (176°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	>1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) T.C.C. based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.890 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.4% based on MEK
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F): Acetone
Auto-Ignition Temperature:	404°C (759°F): MEK	**Vapor Density:**	> 2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A, VOC content is: ≤ 325 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 325 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Symbols:	F, Xi	
Risk Phrases:	R11: Highly flammable.	R66: Repeated exposure may cause skin dryness or cracking
	R36/37: Irritating to eyes and respiratory system.	R67: Vapors may cause drowsiness and dizziness
Safety Phrases:	S2: Keep out of the reach of children	S25: Avoid contact with eyes.
	S9: Keep container in a well-ventilated place.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department Issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/7/2015 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for ABS Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG 790 2pgs

GHS SAFETY DATA SHEET

WELD-ON® 790™ Low VOC Multi-Purpose Plastic Pipe Cement

Date Revised: APR 2015
Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 790™ Low VOC Multi-Purpose Plastic Pipe Cement

PRODUCT USE: Multi-purpose low VOC solvent cement for PVC and CPVC

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P337+P313: Get medical advice/attention
H351: Suspected of causing cancer	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation
EUH066: Repeated exposure may cause skin dryness or cracking	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	30 - 45
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	20- 35
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	10 - 25

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	0-Minimal
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion. Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light Amber, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	66°C (151°F) to 156°C (313°F)
Boiling Point:	66°C (151°F) Based on first boiling component: THF	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on THF	**Flammability:**	Category 2
Specific Gravity:	0.934 @23°C (73°F)	**Flammability Limits:**	LEL: 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		UEL: 11.8% based on THF
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	129 mm Hg @ 20°C (68°F)based on THF
Auto-Ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 490 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 490 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant, Carc. Cat. 2	Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia
Symbols:	F, Xi	AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Risk Phrases:	R11: Highly flammable.	R36/37: Irritating to eyes and respiratory system.
	R19: May form explosive peroxide	R66: Repeated exposure may cause skin dryness or cracking
	R20: Harmful by inhalation.	R67: Vapors may cause drowsiness and dizziness
Safety Phrases:	S2: Keep out of the reach of children	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S9: Keep container in a well-ventilated place.	S29: Do not empty into drains.
	S16: Keep away from sources of ignition - No smoking.	S33: Take precautionary measures against static discharges.
	S25: Avoid contact with eyes.	S46: If swallowed, seek medical advise immediately and show this container or label.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European
E-mail address:	<EHSinfo@ipscorp.com>	Directive on RoHS (Restriction of Hazardous Substances).
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/21/2015 / Updated GHS Standard Format	
Intended Use of Product:	Multi-purpose low VOC solvent cement for PVC and CPVC	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPS 794 2pgs

WELD-ON

GHS SAFETY DATA SHEET

Date Revised: APR 2015
Supersedes: NOV 2014

WELD-ON® 794™ Low VOC PVC to ABS Plastic Pipe Transition Cement

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 794™ Low VOC PVC to ABS Plastic Pipe Transition Cement

PRODUCT USE: Low VOC Transition Cement for PVC to ABS Transition Joint

SUPPLIER:

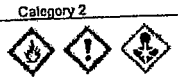
MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International) Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 1B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces -- No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	22 - 49
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	6 - 24
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	4 - 25

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA
Health	2	2
Flammability	3	3
Reactivity	0	0
PPE	B	

0-Minimal
1-Slight
2-Moderate
3-Serious
4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® 794™ Low VOC PVC to ABS Plastic Pipe Transition Cement

Supersedes: NOV 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Green, medium syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	66°C (151°F) to 156°C (313°F)
Boiling Point:	66°C (151°F) Based on first boiling component: THF	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on THF	**Flammability:**	Category 2
Specific Gravity:	0.927 @23°C (73°F)	**Flammability Limits:**	LEL: 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		UEL: 11.8% based on THF
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	129 mm Hg @ 20°C (68°F)based on THF
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Medium bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 446 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 446 g/l.
Degradability:	Not readily biodegradable
Bioaccumulation:	Minimal to none

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant, Carc. Cat. 2

Symbols: F, Xi

Risk Phrases:
- R11: Highly flammable.
- R20: Harmful by inhalation.
- R36/37: Irritating to eyes and respiratory system.
- R66: Repeated exposure may cause skin dryness or cracking
- R67: Vapors may cause drowsiness and dizziness

Safety Phrases:
- S9: Keep container in a well-ventilated place.
- S16: Keep away from sources of ignition - No smoking.
- S25: Avoid contact with eyes.
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S33: Take precautionary measures against static discharges.
- S46: If swallowed, seek medical advise immediately and show this container or label.

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/21/2015 / Updated GHS Standard Format	
Intended Use of Product:	Transition Cement for PVC to ABS Transition Joint	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG P-68 2pgs

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® Plumbing Purple Low VOC Primer for PVC and CPVC Plastic Pipe Supersedes: NOV 2014

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® Plumbing Purple Low VOC Primer for PVC and CPVC Plastic Pipe

PRODUCT USE: Low VOC Primer for PVC and CPVC Plastic Pipe

SUPPLIER:

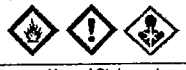
MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800-255-3924, +1 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800-255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 2B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	10 - 25
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	15 - 25
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	10 - 30
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	30 - 50

All of the constituents of this adhesive product are listed on the TSCA Inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: (MEK) Low level chronic exposure has been shown to cause decreased memory and impairment of the central nervous system.
(THF) Category 2 Carcinogen

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon and smoke

	HMIS	NFPA	0-Minimal
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON®

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® Plumbing Purple Low VOC Primer for PVC and CPVC Plastic Pipe Supersedes: NOV 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Purple, thin liquid		
Odor:	Ethereal	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.846 @23°C (73°F)	**Flammability Limits:**	LEL: 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		UEL: 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Water-thin
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 542 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 542 g/l.
Degradability:	Not available
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Flammable Liquid, n.o.s. (Acetone, Tetrahydrofuran)
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1993
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 1L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	Flammable Liquid, n.o.s. (Acetone, Tetrahydrofuran)
UN NUMBER/PACKING GROUP:	UN 1993, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant, Carc. Cat. 2

Symbols: F, Xi

Risk Phrases:
R11: Highly flammable.
R20: Harmful by inhalation.
R36/37: Irritating to eyes and respiratory system.
R66: Repeated exposure may cause skin dryness or cracking
R67: Vapors may cause drowsiness and dizziness

Safety Phrases:
S9: Keep container in a well-ventilated place.
S16: Keep away from sources of ignition - No smoking.
S25: Avoid contact with eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33: Take precautionary measures against static discharges.
S46: If swallowed, seek medical advise immediately and show this container or label.

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/20/2015 / Updated GHS Standard Format	
Intended Use of Product:	Primer for PVC and CPVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

IPG P-70 2PGS

WELD-ON

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® Plumbing Purple Low VOC Primer for PVC and CPVC Plastic Pipe Supersedes: NOV 2014

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® Plumbing Purple Low VOC Primer for PVC and CPVC Plastic Pipe

PRODUCT USE: Low VOC Primer for PVC and CPVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800-255-3924, +1 813-248-0585 (International) Medical: CHEMTEL Tel. 800-255-3924, +1 813-248-0585 (International)

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL: 

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 2B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	10 - 25
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	15 - 25
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	10 - 30
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	30 - 50

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4: FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: (MEK) Low level chronic exposure has been shown to cause decreased memory and impairment of the central nervous system.
(THF) Category 2 Carcinogen

SECTION 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7: HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (110°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8: PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

WELD-ON

GHS SAFETY DATA SHEET

Date Revised: APR 2015

WELD-ON® Plumbing Purple Low VOC Primer for PVC and CPVC Plastic Pipe Supersedes: NOV 2014

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Purple, thin liquid		
Odor:	Ethereal	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.846 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Water-thin
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 542 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicity:	LD_{50}	LC_{50}	Target Organs
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)	STOT SE3

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 542 g/l.
Degradability:	Not available
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Flammable Liquid, n.o.s. (Acetone, Tetrahydrofuran)
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1993
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 1L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	Flammable Liquid, n.o.s. (Acetone, Tetrahydrofuran)
UN NUMBER/PACKING GROUP:	UN 1993, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant, Carc. Cat. 2

Symbols: F, Xi

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

Risk Phrases:
- R11: Highly flammable.
- R20: Harmful by inhalation.
- R36/37: Irritating to eyes and respiratory system.
- R66: Repeated exposure may cause skin dryness or cracking
- R67: Vapors may cause drowsiness and dizziness

Safety Phrases:
- S9: Keep container in a well-ventilated place.
- S16: Keep away from sources of ignition - No smoking.
- S25: Avoid contact with eyes.
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S33: Take precautionary measures against static discharges.
- S46: If swallowed, seek medical advise immediately and show this container or label.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSInfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	4/20/2015 / Updated GHS Standard Format	
Intended Use of Product:	Primer for PVC and CPVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

JQ595-109
3pgs

BLACK SWAN MFG. CO.

GHS SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION

Manufacturer:

Black Swan Mfg. Co.
4540 W. Thomas St.
Chicago, IL 60651-3318
Tel.: 800-252-5796
Fax: 773-227-3705
Web Site : www.blackswanmfg.com
E-mail : info@blackswanmfg.com

For any Transportation or Medical Chemical Emergencies call:

INFOTRAC

(800) 535-5053 **OR** (352) 323-3500

24 hours per day - 7 days a week

Product Name: Plumbers Grease

Recommended Use: Lubricates stems of faucets, valves, ball cocks, etc.

SECTION 2 – HAZARD(S) IDENTIFICATION

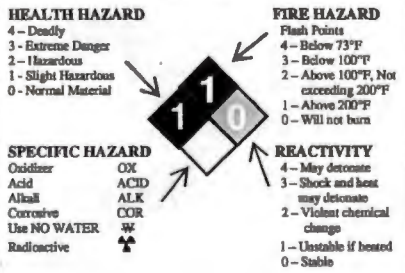
Labels
None

Signal Word
None

HMIS

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

NFPA



GHS Classification

Health
Acute Toxicity: Not Established
Skin Irritation: Not Established
Eye Irritation: Cat 2A
Skin Sensitization: NO

Environmental
Acute Aquatic Toxicity: Not Established
Chronic Aquatic Toxicity: Not Established

Physical
None

Hazardous Statements

H320: Causes eye irritation

Precautionary Statements

P102 : Keep out of reach of children
P262: Do not get in eyes
P264: Wash thoroughly after handling
P270: Do not eat, drink or smoke when using this product

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Chemicals	CAS#	EINECS#	REACH Pre-registration Number	Approx %
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	N/A	N/A	40-60%
Distillates (petroleum), solvent-refined heavy naphthenic	64741-96-4	N/A	N/A	30-50%

*Unlisted ingredients are not classified as hazardous according to OSHA 1910.1200.

SECTION 4 – FIRST-AID MEASURES

Inhalation: Remove into fresh air. If not breathing, give artificial respiration. Call a physician.
Skin: Rinse skin with water for at least 15 minutes. Take off contaminated clothing/shoes and wash before reuse. Get immediate medical attention.
Eyes: Flush eyes with large amounts of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do so. Get immediate medical attention.
Ingestion: If swallowed rinse mouth. DO NOT INDUCE VOMITING. Get immediate medical attention.

SECTION 5 – FIRE-FIGHTING MEASURES

Fire Hazard: Directly spraying extinguishing media onto hot burning products may cause frothing and spreading of fire.
Combustion Products: None.
Extinguishing Media: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable Extinguishing Media: None known.
Protective Equipment: Self-contained breathing apparatus {(SCBA), MSHA/NIOSH} and protective clothing.
Special Fire Fighting Procedures: Evacuate enclosed areas, stay upwind. Closed or confined quarters require self-contained breathing apparatus, positive pressure hose masks or airline masks. Use water spray to cool containers, to flush spills from sources of ignition and to disperse vapors.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions: Minimize skin contact. Provide adequate ventilation.
Protective Equipment: None.
Emergency Procedures: None.
Environmental Precautions: Avoid runoff into storm sewers, ditches and waterways.
Methods for Cleaning Up: Vacuum dust with equipment fitted with HEPA filter and place in a closed waste container. Add sand, earth, or other absorbent to spill. Prevent entry into sewers, water courses, basements and confined areas.

SECTION 7 – HANDLING AND STORAGE

Handling	Storage
Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep containers closed when not in use.	Store in a dry, well ventilated place. Keep cool. Keep container tightly closed. **Incompatible Materials:** Strong oxidants such as Chlorine Gas.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

	Exposure Limits		
Hazardous Chemicals	**ACGIH-TLV**	**ACGIH-STEL**	**OSHA-PEL**
Distillates (petroleum), solvent-dewaxed heavy paraffinic	TWA: 5mg/m^3	10mg/m^3	TWA: 5mg/m^3
Distillates (petroleum), solvent-refined heavy naphthenic	TWA: 5mg/m^3	10mg/m^3	TWA: 5mg/m^3

Engineering Controls: Sufficient ventilation in order to control worker exposure to airborne contaminates.
Ventilation: Local ventilation is adequate.
Personal Protective Equipment – Respiratory: Use a properly fitted particulate filter respirator. **Skin:** Oil resistant gloves. Chemical resistant apron. **Eyes:** Splash goggles/Face shield.

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Amber	**Flash Point:**	380°F	**Vapor Pressure:**	0.01
Odor:	Petroleum	**Specific Gravity:**	0.90	**Flammability:**	Not Established
pH:	Not Established	**Solubility (H2O):**	Very slight at room temperature	**Flammability Limits:**	LEL – 1%
Melting Point:	Not Established	**Evaporation Rate:**	<0.01		UEL – 7%
Freezing Point:	Not Established	**Vapor Density:**	5		
Boiling Point:	500°F	**VOC:**	0 g/l		

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable.
Hazardous polymerization: Will not occur.
Conditions to avoid: None.
Incompatible materials: Strong oxidants such as Chlorine Gas.
Hazardous decomposition products: Fumes, Smoke, COx, SOx, NOx, when combusted.

SECTION 11 – TOXICOLOGICAL INFORMATION

	Toxicity	
Hazardous Chemicals	**LD_{50}**	**LC_{50}**
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Dermal: >5000 mg/kg (rabbit) Oral: >5000 mg/m^3 (rat)	N/A
Distillates (petroleum), solvent-refined heavy naphthenic	Dermal: >5000 mg/kg (rabbit) Oral: >5000 mg/kg (rabbit)	N/A

Likely Routes of Exposure: Inhalation, Skin Contact and Eye contact.
Symptoms and Effect – Inhalation: Respiratory tract irritation. **Skin Contact:** Reddening and irritation. **Eye Contact:** May cause mild irritation.
Ingestion: None.
Long-Term Effect: Product has a low order of acute, oral, and dermal toxicity. Product containing the eyes may cause irritation. Repeated skin contact may cause skin irritation or dermatitis because these types of products tend to remove natural emollients from the skin.
Pre-Existing Conditions: Pre-existing dermatitis or skin disease.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: None known.
Persistance & Degradability: None known.
Bioaccumulative Potential: None known.
Mobility in soil: In normal use, emission of Volatile Organic Compounds (VOC's) to the air takes place, typically at a rate of 0 g/l.

SECTION 13 – DISPOSAL CONSIDERATION

Dispose of product or container in accordance with federal, state or local regulations.

SECTION 14 – TRANSPORTATION INFORMATION

D.O.T. (U.S.): Not Regulated.

SECTION 15 – REGULATORY INFORMATION

Precautionary Label Information: None.
Risk Phrases: None.
Safety Phrases: S2-Keep out of reach of children.

SECTION 16 – OTHER INFORMATION

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act and shall not be used for any other purpose. Black Swan Mfg. Co. urges the customers receiving this Material Safety Data Sheet to study it carefully to become aware of the hazards, if any, of the product involved. In the interest of safety, you should notify your employees, agents and contractors of the information on the sheets. **DATE: 01/01/2017**

JQ 7-16-100 4 pgs

BLACK SWAN MFG. CO.

MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION

Manufacturer:

Black Swan Manufacturing Co.
4540 W. Thomas Street
Chicago, IL 60651-3318
Telephone: 1-800-252-5796
Fax: 1-773-227-3705
Web Site: **www.blackswanmfg.com**
E-mail: **info@blackswanmfg.com**

For any transportation or medical chemical emergencies call:

INFOTRAC

(800) 535-5053 OR (352) 323-3500

24 hours per day - 7 days a week

Product Name:

Pipe Wrap Primer

Recommended Use:

Used on underground gas pipe to fill voids and help the pipe wrap tape adhere better to the pipe.

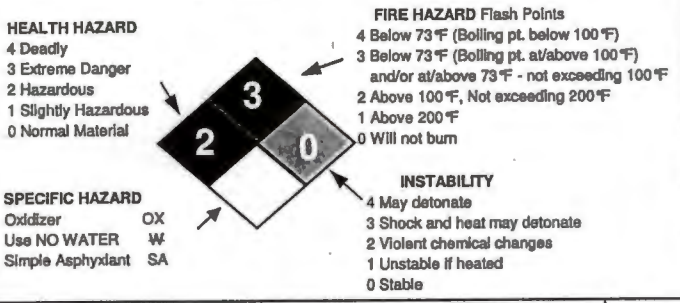
SECTION 2 - HAZARD(S) IDENTIFICATION

Label

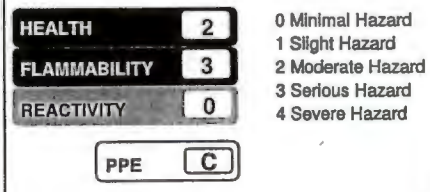
Flammable

Irritant

NFPA



HMIS



Health		Environmental		Physical	
Acute Toxicity:	N/A	Acute Toxicity:	N/A	Flammability:	Class IB
Skin Corrosion:	N/A	Chronic Toxicity:	N/A	Other:	N/A
Eye Irritation:	N/A				
Skin Sensitization:	N/A				

Hazardous Statements

Danger! Extremely Flammable.
Vapors Harmful.
Harmful if swallowed.
May irritate skin and eyes.
Vapors may ignite explosively.

Precautionary Statement

Avoid contact with skin and eyes.
Keep out of reach of children.
Do not allow to be taken internally.
Keep away from heat, sparks, open flame and other sources of ignition.
Use only in a well ventilated area. Avoid breathing vapors.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Chemicals	CAS #	EINECS#	Approx %
Acetone	67-64-1	200-662-2	-----
N-Heptane	142-82-5	205-563-8	-----
Mercaptotoluimidazole	53988-10-6	258-904-8	-----

*Title III Section 313 Supplier Notification: This product contains toxic chemicals subject to the reporting requirement of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40CFR372. This information must be included in all MSDS's that are copied and distributed for this material.

MATERIAL SAFETY DATA SHEET

SECTION 4 - FIRST-AID MEASURES

Inhalation: Remove to fresh air immediately. If breathing has stopped give artificial respiration. Keep warm and quiet. Get medical attention immediately.

Skin: Immediately flush the contaminated area with large amounts of water. Remove contaminated clothing as water is applied. Consult a physician.

Eyes: Flush with large amounts of water, lifting upper and lower lids occasionally. Continue for at least 15 minutes. Get medical attention immediately.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Call Poison Control Center, Hospital Emergency Room, or Physician immediately.

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media		Specific Hazards	Protective Equipment
Suitable	Unsuitable	During emergency conditions, overexposure to decompostion may cause health hazard.	Self-contained breathing apparatus. {(SCBA), MSHA/NIOSH}. Full protective gear.
Carbon Dioxide	Water		
Dry Chemical	Foam		
Alcohol Foam			

Special Firefighting Procedures

Water may be ineffective, but may be used to cool exposed containers to prevent pressure build-up and possible auto-ignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferable.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use normal good safety and health procedures.

Protective Equipment: Use appropriate respirators, and body protection apparel.

Emergency Procedures: Keep people away. Eliminate all ignition sources (flames, hot surfaces, and sources of electrical, static or frictional sparks). Dike and contain spill with inert material (sand).

Environmental Precautions: Prevent contamination of sewers, streams, and groundwater with spilled material.

Methods for Cleaning-Up: Transfer liquids to covered metal containers for recovery or disposal, or remove with inert absorbent. Use non-sparking tools. Place absorbent diking materials in covered metal containers for disposal.

Other Precautions: None.

SECTION 7 - HANDLING AND STORAGE

Handling	Storage
Do not take internally. Close container after each use. Avoid skin contact. Empty containers must not be washed and re-used for any purpose. Containers should be grounded and bonded to the receiving container. Do not weld, braze or cut on empty container. Never use pressure to empty. Drum is not a pressure vessel.	Do not store above 115°F (46°C) store large quantities in compliance with OSHA 29CFR1910.106.

MATERIAL SAFETY DATA SHEET

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA Exposure Limits

Hazardous Components	ACGIH-TLV	OSHA-PEL
Acetone	500 ppm	750 ppm
N-Heptane	400 ppm	400 ppm
Mercaptotoluimidazole	N/A	N/A

Personal Protective Equipment

Respiratory Protection: NIOSH approved respirator is required.

Ventilation: Local exhaust and mechanical (general) exhaust.

Other Protective Equipment:	Protective Gloves	Eyes and Face Protection	Other Protective Equipment
	Impermeable Gloves.	Safety Glasses/Goggles.	None.

Other Precautions: None.

Engineering Controls

Eye wash facility and safety showers.

SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Light Amber	**Volatile by Volume:**	68%
Odor:	Ether	**Vapor Pressure:**	N/A
Odor Threshold:	N/A	**Vapor Density:**	Heavier than air
pH:	N/A	**Relative Density:**	N/A
Melting/Freezing Point:	N/A	**Solubility:**	Negligable
Boiling Point:	130°F to 210°F	**Partition Coefficient: n-octanol/water:**	N/A
Boiling Range:	N/A	**Auto-ignition Temperature:**	N/A
Flash Point:	-1° F	**Specific Gravity (H20=1):**	0.8
Evaporation Rate:	Slower than diethyl ether	**Viscosity:**	N/A
Flammability:	N/A	**VOC:**	376 g/l
Flammability Limits:	LEL: 1.0% ; UEL:13%		

SECTION 10 - STABILITY AND REACTIVITY

Stability		Hazardous Polymerization		Conditions To Avoid
Stable	Unstable	May Occur	Will Not Occur	Avoid excess heat of 115°F and sources of ignition.
☑	☐	☐	☑	

Incompatible Materials

Strong acids, alkaline materials and oxidizing materials.

Hazardous Decomposition Products

Burning, including when heated by welding or cutting, will produce smoke, Carbon Monoxide and Carbon Dioxide.

MATERIAL SAFETY DATA SHEET

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure		Symptoms/Effects
Inhalation	✓	May cause nose or throat irritation. High concentrations may cause acute central nervous system depression characterized by headaches, dizziness, nausea and confusion.
Skin Contact	✓	May cause skin sensitization. May cause defatting and irritation of the skin.
Eye Contact	✓	May cause eye irriation.
Ingestion	✓	Can cause gastrointestinal irritation, nausea, and vomiting. Aspiration of material into lung may cause chemical pneumonitis which can be fatal.

Long-Term Effects: Reports have associated prolonged and repeated occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Pre-Existing Conditions: Persons with pre-existing skin, lung, kidney, or liver disorders may be at increased risks.

	Toxicity	
Hazardous Components	LD_{50}	LC_{50}
Acetone	N/A	N/A
N-Heptane	N/A	N/A
Mercaptotoluimidazole	N/A	N/A

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None.
Persistance & Degradability: None.
Bioaccumulative Potential: None.
Mobility in Soil: None.
Other Adverse Effects: None.

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

SECTION 14 - TRANSPORTATION INFORMATION

Shipping Information

Shipping Name: Adhesives, Containing a Flammable Liquid
Hazardous Class: 3
I.D. Number: UN1133
Packing Group: II
Label Required: Flammable Liquid
Marine Pollutant: No

Exception to the rule: If the package that contains the hazardous material is in a small consumer size (Less than 1L) then the rules that apply to shipping hazardous materials do not apply. This is called an "Exception". This is classified as Consumer Commodity ORM-D.

SECTION 15 - REGULATORY INFORMATION

None.

SECTION 16 - OTHER INFORMATION

Disclaimer: **Revision Date:** JULY 2010

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act and shall not be used for any other purpose. Black Swan Manufacturing Co. urges the customers receiving this Material Safety Data Sheet to study it carefully to become aware of the hazards, if any, of the product involved. In the interest of safety, you should notify your employees, agents, and contractors of the information on the sheets.

LC Cool Gel 5pgs

Cool Gel®

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
Date of issue: 11/03/1998Revision date: 03/05/2015Supersedes: 02/26/2013
Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Trade name : Cool Gel®

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Heat-absorbing compound

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Not classified

2.2 Label elements

GHS-US labelling

No labelling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

No hazardous components.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow victim to breathe fresh air.

First-aid measures after skin contact : Wash skin with mild soap and water.

First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

No special procedures required.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not flammable.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Fire-resistant protective clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : This product is not hazardous.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Emergency procedures : No additional risk management measures required.

6.2. Environmental precautions

Contains no substances known to be hazardous to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Wipe up with absorbent material (for example cloth).

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Does not necessitate any specific/particular technical measures.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in original container.

7.3. Specific end use(s)

Metal Working Fluids.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Cool Gel®	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : None under normal use.

Eye protection : No special eye protection equipment recommended under normal conditions of use.

Respiratory protection : No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Gel.
Colour	: clear. Colorless.
Odour	: odourless.
Odour threshold	: No data available
pH	: 7
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: 0 °C
Freezing point	: No data available
Boiling point	: 100
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content	: 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
Water reactive.

10.6. Hazardous decomposition products
No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms

Likely routes of exposure : Skin and eye contact

SECTION 12: Ecological information

12.1 Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT and TDG

Not considered a dangerous good for transport regulations

Proper Shipping Name (ADR) : Not applicable

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

Cool Gel®

All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed in the Toxic Substances Control Act (TSCA).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

15.3. US State regulations

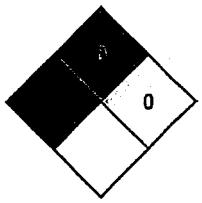
No additional information available

SECTION 16: Other information

Indication of changes : Revised format.

Data sources	: ACGIH 2000. Canadian Centre for Occupational Health and Safety. Accessed at: http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html. ESIS (European chemincal Substances Information System; accessed at: http://esis.jrc.ec.europa.eu/index.php?PGM=cla. European Chemicals Agency (ECHA) Registered Substances list. Accessed at http://echa.europa.eu/. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition. National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition. OSHA 29CFR 1910.1200 Hazard Communication Standard. REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.
Abbreviations and acronyms	: ACGIH (American Conference of Governement Industrial Hygienists). ATE: Acute Toxicity Estimate. CAS (Chemical Abstracts Service) number. CLP: Classification, Labelling, Packaging. EC50: Environmental Concentration associated with a response by 50% of the test population. GHS: Globally Harmonized System (of Classification and Labeling of Chemicals). LD50: Lethal Dose for 50% of the test population. OSHA: Occupational Safety & Health Administration. PBT: Persistent, Bioaccumulative, Toxic. STEL: Short Term Exposure Limits. TSCA: Toxic Substances Control Act. TWA: Time Weight Average.
Other information	: None.

NFPA health hazard	: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



SDS Prepared by: The Redstone Group, LLC
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Suite 200
Dublin, OH USA 43016
T 614-923-7472
www.redstonegrp.com

LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

LC Flux Liquid 10pgs

BRITE Regular Soldering Flux Liquid

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
Date of issue: 06/03/1993Revision date: 03/05/2015Supersedes: 02/04/2013
Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Trade name : BRITE Regular Soldering Flux Liquid

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Soldering flux

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Flam. Liq. 3 H226
STOT SE 3 H335

Full text of H-phrases: see section 16

2.2 Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS02

GHS07

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H226 - Flammable liquid and vapour
H335 - May cause respiratory irritation

Precautionary statements (GHS-US) : P210 - Keep away from heat, open flames, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof lighting, ventilating, electrical equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing mist, spray, vapours
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective clothing, protective gloves
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P312 - Call a doctor if you feel unwell
P370+P378 - In case of fire: Use Suitable extinguishing media to extinguish
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	% (w/w)	GHS-US classification
Ethanolamine hydrochloride	(CAS No) 2002-24-6	27.27	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
ammonium chloride	(CAS No) 12125-02-9	6.95	Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319
ethanol	(CAS No) 64-17-5	5.09	Flam. Liq. 2, H225
Isopropanol	(CAS No) 67-63-0	0.90	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336
polythylene glycol trimethylphenylnonyl ether	(CAS No) 60828-78-6	0.33 - 0.38	Eye Dam. 1, H318
propyl acetate	(CAS No) 109-60-4	0.30	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336

Full text of H-phrases: see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

First-aid measures after skin contact : Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

First-aid measures after eye contact : If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.

4.3. Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour.

Explosion hazard : May form flammable/explosive vapour-air mixture.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid all eye and skin contact and do not breathe vapour and mist. Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Protective equipment : In case of inadequate ventilation wear respiratory protection.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Where excessive vapour, mist, or dust may result, use approved respiratory protection equipment.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Do not discharge into drains or the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk. Contain and/or absorb spill with inert material, then place in suitable container.

Methods for cleaning up : Take up in non-combustible absorbent material and shove into container for disposal.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.

Precautions for safe handling : Avoid breathing mist, spray, vapours. Use only outdoors or in a well-ventilated area. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/... equipment.

Storage conditions : Keep container tightly closed. Store in a dry, cool and well-ventilated place.

Incompatible products : Oxidizer. Cyanides and sulfide salts.

Incompatible materials : Heat sources. Sources of ignition.

Prohibitions on mixed storage : Keep away from incompatible materials.

7.3. Specific end use(s)

Flux.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

BRITE Regular Soldering Flux Liquid	
ACGIH	Not applicable
OSHA	Not applicable

ethanol (64-17-5)		
ACGIH	ACGIH TWA (mg/m³)	1884 mg/m³
ACGIH	ACGIH TWA (ppm)	1000 ppm
ACGIH	ACGIH STEL (ppm)	1000 ppm
ACGIH	Remark (ACGIH)	URT irr
OSHA	OSHA PEL (TWA) (mg/m³)	1900 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
Canada (Quebec)	VEMP (mg/m³)	1880 mg/m³
Canada (Quebec)	VEMP (ppm)	1000 ppm

Isopropanol (67-63-0)		
ACGIH	ACGIH TWA (mg/m³)	490 mg/m³
ACGIH	ACGIH TWA (ppm)	200 ppm

Isopropanol (67-63-0)		
ACGIH	ACGIH STEL (mg/m³)	960 mg/m³
ACGIH	ACGIH STEL (ppm)	400 ppm
ACGIH	Remark (ACGIH)	Eye & URT irr; CNS impair
OSHA	OSHA PEL (TWA) (mg/m³)	980 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	400 ppm
Canada (Quebec)	VECD (mg/m³)	1230 mg/m³
Canada (Quebec)	VECD (ppm)	500 ppm
Canada (Quebec)	VEMP (mg/m³)	983 mg/m³
Canada (Quebec)	VEMP (ppm)	400 ppm

propyl acetate (109-60-4)		
ACGIH	ACGIH TWA (mg/m³)	835 mg/m³
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	ACGIH STEL (mg/m³)	1040 mg/m³
ACGIH	ACGIH STEL (ppm)	250 ppm
ACGIH	Remark (ACGIH)	Eye & URT irr
OSHA	OSHA PEL (TWA) (mg/m³)	840 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
Canada (Quebec)	VECD (mg/m³)	1040 mg/m³
Canada (Quebec)	VECD (ppm)	250 ppm
Canada (Quebec)	VEMP (mg/m³)	835 mg/m³
Canada (Quebec)	VEMP (ppm)	200 ppm

ammonium chloride (12125-02-9)		
ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
ACGIH	ACGIH STEL (mg/m³)	20 mg/m³
ACGIH	Remark (ACGIH)	Eye & URT irr
OSHA	Not applicable	
Canada (Quebec)	VECD (mg/m³)	20 mg/m³
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³

polythylene glycol trimethylphenylnonyl ether (60828-78-6)	
ACGIH	Not applicable
OSHA	Not applicable

Ethanolamine hydrochloride (2002-24-6)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Avoid creating mist or spray. Avoid splashing. Either local exhaust or general room ventilation is usually required.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : It is a good industrial hygiene practice to minimize skin contact. In case of repeated or prolonged contact wear gloves. rubber.

Eye protection : In case of splashing or aerosol production: protective goggles.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Use an approved respirator equipped with oil/mist cartridges.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Yellow. light brown.

Odour : No data available

Odour threshold	: No data available
pH	: 6.5 - 7
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 100 °C
Flash point	: 42.2 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content : 6 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Flammable liquid and vapour. May form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Avoid excessive heat or cold. Open flame. Overheating. Direct sunlight. Heat. Sparks.

10.5. Incompatible materials
Oxidizing agent. Cyanides and sulfide salts.

10.6. Hazardous decomposition products
Thermal decomposition generates : Carbon dioxide. Carbon monoxide. ammonia. hydrogen chloride. ammonium chloride. May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

BRITE Regular Soldering Flux Liquid	
LD50 oral rat	> 5000 mg/kg male

ethanol (64-17-5)	
LD50 oral rat	10470 mg/kg
LD50 dermal rabbit	> 20000 mg/kg
LC50 inhalation rat (mg/l)	133.8 mg/l/4h
ATE CLP (oral)	10470.000 mg/kg bodyweight
ATE CLP (vapours)	133.800 mg/l/4h
ATE CLP (dust,mist)	133.800 mg/l/4h

Isopropanol (67-63-0)	
LD50 oral rat	5840 mg/kg
LD50 dermal rabbit	16.4 ml/kg
LC50 inhalation rat (ppm)	> 10000 ppm/4h

Isopropanol (67-63-0)	
ATE CLP (oral)	5840.000 mg/kg bodyweight

propyl acetate (109-60-4)	
LD50 oral rat	8700 mg/kg
LD50 dermal rabbit	> 17800 mg/kg
LC50 inhalation rat (mg/l)	32 mg/l/4h
ATE CLP (oral)	8700.000 mg/kg bodyweight
ATE CLP (vapours)	32.000 mg/l/4h
ATE CLP (dust,mist)	32.000 mg/l/4h

ammonium chloride (12125-02-9)	
LD50 oral rat	1410 mg/kg
LD50 dermal rat	> 2000 mg/kg
ATE CLP (oral)	1410.000 mg/kg bodyweight

polythylene glycol trimethylphenylnonyl ether (60828-78-6)	
LD50 oral rat	3300 mg/kg
LD50 dermal rat	8874 mg/kg
ATE CLP (oral)	3300.000 mg/kg bodyweight
ATE CLP (dermal)	8874.000 mg/kg bodyweight

Skin corrosion/irritation : Not classified.
(Not irritating to rabbits on cutaneous application)

Serious eye damage/irritation : Not classified.
(Not irritating to rabbits on ocular application)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Isopropanol (67-63-0)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

ammonium chloride (12125-02-9)	
NOAEL (subchronic, oral, animal/male, 90 days)	>= 580 mg/kg bodyweight 56 days

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms

Symptoms/injuries after inhalation : May cause respiratory irritation.

Likely routes of exposure : Skin and eye contact;Inhalation

SECTION 12: Ecological information

12.1 Toxicity

ethanol (64-17-5)	
LC50 fish 1	14200 mg/l
EC50 Daphnia 1	5012 mg/l

Isopropanol (67-63-0)	
LC50 fish 1	10000 mg/l

propyl acetate (109-60-4)	
LC50 fish 1	60 mg/l 96 h
EC50 Daphnia 1	91.5 mg/l 48 h

ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l 96 h
EC50 Daphnia 1	101 mg/l 48 h

polythylene glycol trimethylphenylnonyl ether (60828-78-6)	
LC50 fish 1	10 (10 - 100) mg/l

12.2. Persistence and degradability

ethanol (64-17-5)	
Biodegradation	> 96 % 28 d

Isopropanol (67-63-0)	
Persistence and degradability	Readily biodegradable.

propyl acetate (109-60-4)	
Persistence and degradability	Readily biodegradable.
Biodegradation	62 % 5 d

polythylene glycol trimethylphenylnonyl ether (60828-78-6)	
Persistence and degradability	Not readily biodegradable.

12.3. Bioaccumulative potential

ethanol (64-17-5)	
Bioaccumulative potential	Not expected to bioaccumulate.

Isopropanol (67-63-0)	
Bioaccumulative potential	Not expected to bioaccumulate.

propyl acetate (109-60-4)	
Log Pow	1.23

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Handle empty containers with care because residual vapours are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT and TDG

Transport document description : UN1170 Ethanol solutions, 3, III

UN-No.(DOT) : UN1170

Proper Shipping Name (DOT) : Ethanol solutions

Department of Transportation (DOT) Hazard Classes : 3 - Flammable liquid

Packing group (DOT) : III - Minor Danger

ADR

Transport document description : UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, III, (D/E)

Proper Shipping Name (ADR) : ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

Packing group (ADR) : III

Class (ADR) : 3 - Flammable liquid

Transport by sea

UN-No. (IMDG) : UN 1170

Proper Shipping Name (IMDG) : ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

Class (IMDG) : 3 - Flammable liquids

Packing group (IMDG) : III

Air transport

UN-No.(IATA) : UN 1170

Proper Shipping Name (IATA) : Ethanol solution

Class (IATA) : 3 - Flammable Liquids

Packing group (IATA) : III

SECTION 15: Regulatory information

15.1. US Federal regulations

ethanol (64-17-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isopropanol (67-63-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes	Fire hazard

propyl acetate (109-60-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

ammonium chloride (12125-02-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb

polythylene glycol trimethylphenylnonyl ether (60828-78-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e., Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)). N - N - indicates a polymeric substance containing no free-radical initiator in its Inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

Ethanolamine hydrochloride (2002-24-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

ethanol (64-17-5)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Isopropanol (67-63-0)

Listed on the Canadian DSL (Domestic Substances List) inventory.

propyl acetate (109-60-4)

Listed on the Canadian DSL (Domestic Substances List) inventory.

ammonium chloride (12125-02-9)

Listed on the Canadian DSL (Domestic Substances List) inventory.

polythylene glycol trimethylphenylnonyl ether (60828-78-6)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Ethanolamine hydrochloride (2002-24-6)

Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

ethanol (64-17-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Isopropanol (67-63-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

propyl acetate (109-60-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

ammonium chloride (12125-02-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

polythylene glycol trimethylphenylnonyl ether (60828-78-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethanolamine hydrochloride (2002-24-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

BRITE Regular Soldering Flux Liquid

All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed in the Toxic Substances Control Act (TSCA).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

15.3. US State regulations

ethanol (64-17-5)

U.S. - New Jersey - Right to Know Hazardous Substance List

Isopropanol (67-63-0)

U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List

propyl acetate (109-60-4)

U.S. - New Jersey - Right to Know Hazardous Substance List

ammonium chloride (12125-02-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : GHS classification information. Revised format. Revised sections: 1 - 16.

Data sources : ACGIH 2000.

Canadian Centre for Occupational Health and Safety. Accessed at: http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html.

ESIS (European chemincal Substances Information System; accessed at: http://esis.jrc.ec.europa.eu/index.php?PGM=cla.

European Chemicals Agency (ECHA) Registered Substances list. Accessed at http://echa.europa.eu/. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.

National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.

OSHA 29CFR 1910.1200 Hazard Communication Standard.

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.

Abbreviations and acronyms : ACGIH (American Conference of Governement Industrial Hygienists).

ATE: Acute Toxicity Estimate.

CAS (Chemical Abstracts Service) number.

CLP: Classification, Labelling, Packaging.

EC50: Environmental Concentration associated with a response by 50% of the test population.

GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).

LD50: Lethal Dose for 50% of the test population.

OSHA: Occupational Safety & Health Administration.

PBT: Persistent, Bioaccumulative, Toxic.

STEL: Short Term Exposure Limits.

TSCA: Toxic Substances Control Act.

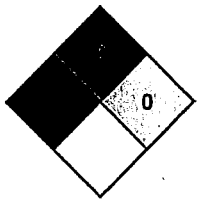
TWA: Time Weight Average.

Other information : None.

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 2 - Must be moderately heated or exposed to relatively high temperature before ignition can occur.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour
H226	Flammable liquid and vapour
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness

SDS Prepared by: The Redstone Group, LLC
6397 Emerald Pkwy.
Suite 200
Dublin, OH USA 43016
T 614-923-7472
www.redstonegrp.com

LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

LC Flux 7pgs

Regular Soldering Flux Paste

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
Date of issue: 05/26/2011Revision date: 03/09/2015Supersedes: 05/26/2011
Version: 2.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Trade name : Regular Soldering Flux Paste

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Soldering flux

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Not classified

2.2 Label elements

GHS-US labelling

No labelling applicable

2.3. Other hazards

2.4 Unknown acute toxicity (GHS-US)

0.03 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	% (w/w)	GHS-US classification
Ethanolamine hydrochloride	(CAS No) 2002-24-6	15	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
ammonium chloride	(CAS No) 12125-02-9	9.14	Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : No significant signs or symptoms indicative of any health hazard are expected to occur.

4.3. Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide. Dry powder. Foam. Water spray.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No specific fire or explosion hazard.

Explosion hazard : Product is not explosive.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers. Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing and gloves. Nitrile gloves. Chemical goggles or safety glasses. In case of inadequate ventilation wear respiratory protection.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing and gloves. Neoprene or nitrile rubber gloves. Chemical goggles or safety glasses. Where excessive vapour, mist, or dust may result, use approved respiratory protection equipment.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk. Contain and/or absorb spill with inert material, then place in suitable container.

Methods for cleaning up : Take up in non-combustible absorbent material and shove into container for disposal. On land, sweep or shovel into suitable containers.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not eat, drink or smoke when using this product. Provide good ventilation in process area to prevent formation of vapour. Remove all sources of ignition.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well ventilated place. Keep container closed when not in use.

Incompatible products	: Strong oxidizing agents. Strong acids. Strong bases. amines. Acid chlorides,. metals. Cyanides and sulfide salts.
Prohibitions on mixed storage	: Keep away from incompatible materials.

7.3. Specific end use(s)

Flux.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Regular Soldering Flux Paste		
ACGIH	Not applicable	
OSHA	Not applicable	

ammonium chloride (12125-02-9)		
ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
ACGIH	ACGIH STEL (mg/m³)	20 mg/m³
ACGIH	Remark (ACGIH)	Eye & URT irr
OSHA	Not applicable	
Canada (Quebec)	VECD (mg/m³)	20 mg/m³
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³

Ethanolamine hydrochloride (2002-24-6)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls	: Provide local exhaust ventilation of closed transfer systems to minimize exposures.
Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: It is a good industrial hygiene practice to minimize skin contact. Wear suitable gloves. Impermeable protective nitrile gloves.
Respiratory protection	: In case of inadequate ventilation wear respiratory protection. Use an approved respirator equipped with oil/mist cartridges.
Other information	: Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Paste.
Colour	: yellowish to white.
Odour	: Faint.
Odour threshold	: No data available
pH	: 6.5 - 7
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 204 °C (TOC)
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.1
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available

Viscosity, dynamic	: No data available
Explosive properties	: Product is not explosive.
Oxidising properties	: No oxidizing properties.
Explosive limits	: No data available

9.2. Other information

VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Contact with incompatible materials. Avoid excessive heat or cold.

10.5. Incompatible materials
Strong oxidizing agents. Strong bases. Strong acids. amines. aluminum and other metals. Cyanides and sulfide salts.

10.6. Hazardous decomposition products
Carbon dioxide. Carbon monoxide. Ammonia. hydrogen chloride. Burning produces irritating, toxic and noxious fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Regular Soldering Flux Paste	
LD50 oral rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 20 mg/l vapours, 1 hour exposure

ammonium chloride (12125-02-9)	
LD50 oral rat	1410 mg/kg
LD50 dermal rat	> 2000 mg/kg
ATE CLP (oral)	1410.000 mg/kg bodyweight

Skin corrosion/irritation : Not classified.
(Non-irritating to skin in rabbits.)

Serious eye damage/irritation : Not classified.
(Slightly irritant but not relevant for classification)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

ammonium chloride (12125-02-9)	
NOAEL (subchronic, oral, animal/male, 90 days)	>= 580 mg/kg bodyweight 56 days

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms

Likely routes of exposure : Skin and eye contact

SECTION 12: Ecological information

12.1 Toxicity

Ecology - general : Avoid undiluted product to come into sewer or surface water.

ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l 96 h
EC50 Daphnia 1	101 mg/l 48 h

12.2. Persistence and degradability

Regular Soldering Flux Paste	
Persistence and degradability	Not readily biodegradable.

12.3. Bioaccumulative potential

Regular Soldering Flux Paste	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT and TDG

Not considered a dangerous good for transport regulations

Proper Shipping Name (ADR) : Not applicable

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

ammonium chloride (12125-02-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb

Ethanolamine hydrochloride (2002-24-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

ammonium chloride (12125-02-9)
Listed on the Canadian DSL (Domestic Substances List) inventory.

Ethanolamine hydrochloride (2002-24-6)
Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

ammonium chloride (12125-02-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethanolamine hydrochloride (2002-24-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Regular Soldering Flux Paste
All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
All ingredients are listed in the Toxic Substances Control Act (TSCA).

15.3. US State regulations

ammonium chloride (12125-02-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Removed. WHMIS. 1998.

Data sources : ACGIH 2000.

ESIS (European chemincal Substances Information System; accessed at: http://esis.jrc.ec.europa.eu/index.php?PGM=cla.

OSHA 29CFR 1910.1200 Hazard Communication Standard.

European Chemicals Agency (ECHA) Registered Substances list. Accessed at http://echa.europa.eu/.

Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.

National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.

Abbreviations and acronyms : ACGIH (American Conference of Governement Industrial Hygienists).

ATE: Acute Toxicity Estimate.

CAS (Chemical Abstracts Service) number.

CLP: Classification, Labelling, Packaging.

EC50: Environmental Concentration associated with a response by 50% of the test population.

GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).

LD50: Lethal Dose for 50% of the test population.

OSHA: Occupational Safety & Health Administration.

STEL: Short Term Exposure Limits.

TSCA: Toxic Substances Control Act.

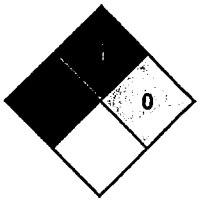
TWA: Time Weight Average.

Other information : None.

NFPA health hazard : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 1 - Must be preheated before ignition can occur.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

SDS Prepared by: The Redstone Group, LLC
6397 Emerald Pkwy.
Suite 200
Dublin, OH USA 43016
T 614-923-7472
www.redstonegrp.com

LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

LC Fluxrite 7pgs

FLUX-RITE 90® Paste

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
Date of issue: 12/02/1994Revision date: 03/05/2015Supersedes: 02/04/2013
Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Trade name : FLUX-RITE 90® Paste

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Soldering flux

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Not classified

2.2 Label elements

GHS-US labelling

No labelling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	% (w/w)	GHS-US classification
Ethanolamine hydrochloride	(CAS No) 2002-24-6	4.56	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
ammonium chloride	(CAS No) 12125-02-9	1.65	Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319
lithium chloride	(CAS No) 7447-41-8	1.32	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow victim to breathe fresh air.

First-aid measures after skin contact : Wash skin with mild soap and water.

First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Irritation.

Symptoms/injuries after eye contact : May cause slight irritation.

4.3. Indication of any immediate medical attention and special treatment needed

No special procedures required.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Foam. Water fog.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No particular fire or explosion hazard.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Fire-resistant protective clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : This product is not hazardous.

6.1.1. For non-emergency personnel

Protective equipment : Chemical goggles or safety glasses.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Chemical goggles or safety glasses.

Emergency procedures : No additional risk management measures required.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Absorb and/or contain spill with inert material, then place in suitable container.

Methods for cleaning up : Wipe up with absorbent material (for example cloth).

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Does not necessitate any specific/particular technical measures.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place.

Incompatible products : None known.

7.3. Specific end use(s)

Flux.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

FLUX-RITE 90® Paste	
ACGIH	Not applicable
OSHA	Not applicable

ammonium chloride (12125-02-9)		
ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
ACGIH	ACGIH STEL (mg/m³)	20 mg/m³
ACGIH	Remark (ACGIH)	Eye & URT irr
OSHA	Not applicable	
Canada (Quebec)	VECD (mg/m³)	20 mg/m³
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³

lithium chloride (7447-41-8)	
ACGIH	Not applicable
OSHA	Not applicable

Ethanolamine hydrochloride (2002-24-6)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : None under normal use.

Eye protection : In case of splashing or aerosol production: protective goggles.

Respiratory protection : No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Paste.

Colour : light yellow.

Odour : slight.

Odour threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapour pressure : No data available

Relative vapour density at 20 °C : No data available

Relative density : 1.1

Solubility : Material highly soluble in water.

Log Pow : No data available

Log Kow : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

Explosive properties : No data available

Oxidising properties : No data available

Explosive limits : No data available

9.2. Other information

VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products
Thermal decomposition generates : ammonia. ammonium chloride. Carbon dioxide. Carbon monoxide. hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

ammonium chloride (12125-02-9)	
LD50 oral rat	1410 mg/kg
LD50 dermal rat	> 2000 mg/kg
ATE CLP (oral)	1410.000 mg/kg bodyweight

lithium chloride (7447-41-8)	
LD50 oral rat	526 mg/kg
LD50 dermal rat	> 2000 mg/kg No mortality observed
LC50 inhalation rat (mg/l)	5.57 mg/l/4h
ATE CLP (oral)	526.000 mg/kg bodyweight
ATE CLP (vapours)	5.570 mg/l/4h
ATE CLP (dust,mist)	5.570 mg/l/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

ammonium chloride (12125-02-9)	
NOAEL (subchronic, oral, animal/male, 90 days)	>= 580 mg/kg bodyweight 56 days

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms

Symptoms/injuries after inhalation : Irritation.

Symptoms/injuries after eye contact : May cause slight irritation.

Likely routes of exposure : Skin and eye contact;Inhalation

SECTION 12: Ecological information

12.1 Toxicity

ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l 96 h

ammonium chloride (12125-02-9)	
EC50 Daphnia 1	101 mg/l 48 h

lithium chloride (7447-41-8)	
LC50 fish 1	158 mg/l 96 h
EC50 Daphnia 1	249 mg/l 48 h

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

lithium chloride (7447-41-8)	
Log Pow	-0.46

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT and TDG

Not considered a dangerous good for transport regulations

Proper Shipping Name (ADR) : Not applicable

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

ammonium chloride (12125-02-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb

lithium chloride (7447-41-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethanolamine hydrochloride (2002-24-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

ammonium chloride (12125-02-9)
Listed on the Canadian DSL (Domestic Substances List) inventory.

lithium chloride (7447-41-8)
Listed on the Canadian DSL (Domestic Substances List) inventory.

Ethanolamine hydrochloride (2002-24-6)
Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

ammonium chloride (12125-02-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

lithium chloride (7447-41-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Ethanolamine hydrochloride (2002-24-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

FLUX-RITE 90® Paste

All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed in the Toxic Substances Control Act (TSCA).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

15.3. US State regulations

ammonium chloride (12125-02-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revised sections: 1 - 16.

Data sources : ACGIH 2000.

Canadian Centre for Occupational Health and Safety. Accessed at: http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html.

ESIS (European chemincal Substances Information System; accessed at: http://esis.jrc.ec.europa.eu/index.php?PGM=cla.

European Chemicals Agency (ECHA) Registered Substances list. Accessed at http://echa.europa.eu/. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.

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REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

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Abbreviations and acronyms : ACGIH (American Conference of Governement Industrial Hygienists).

ATE: Acute Toxicity Estimate.

CAS (Chemical Abstracts Service) number.

CLP: Classification, Labelling, Packaging.

EC50: Environmental Concentration associated with a response by 50% of the test population.

GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).

LD50: Lethal Dose for 50% of the test population.

OSHA: Occupational Safety & Health Administration.

PBT: Persistent, Bioaccumulative, Toxic.

STEL: Short Term Exposure Limits.

TSCA: Toxic Substances Control Act.

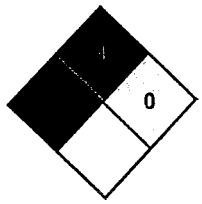
TWA: Time Weight Average.

Other information : None.

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 1 - Must be preheated before ignition can occur.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

SDS Prepared by: The Redstone Group, LLC
6397 Emerald Pkwy.
Suite 200
Dublin, OH USA 43016
T 614-923-7472
www.redstonegrp.com

LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

LC Paste 5 pgs

BLOC-IT® HEAT-ABSORBING PASTE

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
Date of issue: 05/23/1991Revision date: 03/05/2015Supersedes: 02/19/2013
Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Trade name : BLOC-IT® HEAT-ABSORBING PASTE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Heat-absorbing compound

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Not classified

2.2 Label elements

GHS-US labelling

No labelling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	% (w/w)	GHS-US classification
hectorite	(CAS No) 12173-47-6	7.72 – 7.80	Eye Irrit. 2A, H319

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow victim to breathe fresh air.

First-aid measures after skin contact : Wash skin with mild soap and water.

First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

No special procedures required.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not flammable.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Fire-resistant protective clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : This product is not hazardous.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Emergency procedures : No additional risk management measures required.

6.2. Environmental precautions

Contains no substances known to be hazardous to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Wipe up with absorbent material (for example cloth).

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Does not necessitate any specific/particular technical measures.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in original container.

7.3. Specific end use(s)

Metal Working Fluids.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

BLOC-IT® HEAT-ABSORBING PASTE	
ACGIH	Not applicable
OSHA	Not applicable

hectorite (12173-47-6)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : None under normal use.

Eye protection	: No special eye protection equipment recommended under normal conditions of use.
Respiratory protection	: No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Paste.
Colour	: pink. Beige.
Odour	: odourless.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 100 °C
Flash point	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content	: 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products
Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

hectorite (12173-47-6)	
LD50 oral rat	> 5000 mg/kg

Skin corrosion/irritation : Not classified

Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

Potential adverse human health effects and symptoms

Likely routes of exposure : Skin and eye contact

SECTION 12: Ecological information

12.1 Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT and TDG

Not considered a dangerous good for transport regulations

Proper Shipping Name (ADR) : Not applicable

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

hectorite (12173-47-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

hectorite (12173-47-6)
Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

hectorite (12173-47-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

BLOC-IT® HEAT-ABSORBING PASTE

All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
All ingredients are listed in the Toxic Substances Control Act (TSCA).

15.3. US State regulations

No additional information available

SECTION 16: Other information

Indication of changes : Revised format.

Data sources : ACGIH 2000.

Canadian Centre for Occupational Health and Safety. Accessed at: http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html.

ESIS (European chemincal Substances Information System; accessed at: http://esis.jrc.ec.europa.eu/index.php?PGM=cla.

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National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.

OSHA 29CFR 1910.1200 Hazard Communication Standard.

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.

Abbreviations and acronyms : ACGIH (American Conference of Governement Industrial Hygienists).

ATE: Acute Toxicity Estimate.

CAS (Chemical Abstracts Service) number.

CLP: Classification, Labelling, Packaging.

EC50: Environmental Concentration associated with a response by 50% of the test population.

GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).

LD50: Lethal Dose for 50% of the test population.

OSHA: Occupational Safety & Health Administration.

PBT: Persistent, Bioaccumulative, Toxic.

STEL: Short Term Exposure Limits.

TSCA: Toxic Substances Control Act.

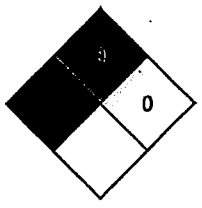
TWA: Time Weight Average.

Other information : None.

NFPA health hazard : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



Full text of H-phrases:

Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
H319	Causes serious eye irritation

SDS Prepared by: The Redstone Group, LLC
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LS Slic-Tite 5pgs

Slic-Tite® Paste with PTFE

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
Date of issue: 09/17/2012Revision date: 10/14/2015
Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Trade name : Slic-Tite® Paste with PTFE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : sealant

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Not classified

2.2 Label elements

GHS-US labelling

No labelling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

There are no components required to be shown.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : Wash with plenty of soap and water.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion : Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : None known.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Carbon dioxide. Foam.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No particular fire or explosion hazard.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Use self-contained breathing apparatus. Wear fire/flame resistant/retardant clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with skin and eyes.

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable gloves. Chemical goggles or safety glasses.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable gloves. Chemical goggles or safety glasses.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Absorb and/or contain spill with inert material, then place in suitable container.

Methods for cleaning up : Take up in non-combustible absorbent material and shove into container for disposal.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid breathing vapours.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place.

Incompatible products : Strong oxidizing agents. Strong acids. Strong bases.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Slic-Tite® Paste with PTFE	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection	: Use rubber gloves.
Eye protection	: In case of splashing or aerosol production: protective goggles.
Respiratory protection	: In case of inadequate ventilation wear respiratory protection. Use an approved respirator equipped with oil/mist cartridges.
Other information	: Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Paste. Viscous.
Colour	: white.
Odour	: Oily.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 177 °C
Flash point	: 150 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: > 300 °C
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: Specific gravity 1.48
Solubility	: insoluble in water.
Log Pow	: < 1
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content	: 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Heat. Open flame.

10.5. Incompatible materials
Strong oxidizing agents. Strong bases. Strong acids.

10.6. Hazardous decomposition products
Burning produces irritating, toxic and noxious fumes. Carbon dioxide. Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Skin corrosion/irritation : Not classified

Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified.
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

Potential adverse human health effects and symptoms

Likely routes of exposure : Skin and eye contact

SECTION 12: Ecological information

12.1 Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Slic-Tite® Paste with PTFE	
Log Pow	< 1

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT and TDG

Not considered a dangerous good for transport regulations

Proper Shipping Name (ADR) : Not applicable

Transport hazard class(es) (ADR) :

Transport by sea

Transport hazard class(es) (IMDG) :

Air transport

Transport hazard class(es) (IATA) :

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

Slic-Tite® Paste with PTFE

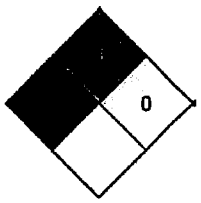
All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed in the Toxic Substances Control Act (TSCA).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

15.3. US State regulations

No additional information available

SECTION 16: Other information

Indication of changes	:	GHS classification information.
Data sources	:	ACGIH (American Conference of Governement Industrial Hygienists). European Chemicals Agency (ECHA) C&L Inventory database. Accessed at http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition. National Fire Protection Association. Fire Protection Guide to Hazardous Materials; 10th edition. OSHA 29CFR 1910.1200 Hazard Communication Standard. TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.
Abbreviations and acronyms	:	ATE: Acute Toxicity Estimate. CAS (Chemical Abstracts Service) number. CLP: Classification, Labelling, Packaging. EC50: Environmental Concentration associated with a response by 50% of the test population. GHS: Globally Harmonized System (of Classification and Labeling of Chemicals). LD50: Lethal Dose for 50% of the test population. OSHA: Occupational Safety & Health Administration. PBT: Persistent, Bioaccumulative, Toxic. TWA: Time Weight Average. TSCA: Toxic Substances Control Act.
Other information	:	None.
NFPA health hazard	:	1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard	:	1 - Must be preheated before ignition can occur.
NFPA reactivity	:	0 - Normally stable, even under fire exposure conditions, and not reactive with water.



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LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

NK Muriatic Acid
11 pgs

HASA MURIATIC ACID

Safety Data Sheet

Emergency 24 Hour Telephone: **CHEMTREC 800.424.9300**

Corporate Headquarters: Hasa Inc.
P. O. Box 802736
Santa Clarita, CA 91355
Telephone • 661.259.5848
Fax • 661.259.1538

SECTION 1: IDENTIFICATION			
1.1	**Product Identification:**		
	1.1.1	**Product Name:**	HASA MURIATIC ACID
	1.1.2	**CAS #** (Chemical Abstracts Service):	7647-01-0
	1.1.3	**RTECS** (Registry of Toxic Effects of Chemical Substances):	MW4025000
	1.1.4	**EINECS** (European Inventory of Existing Chemical Substances):	231-595-7
	1.1.5	**Synonym:**	Hydrochloric Acid, Spirits of Salt
	1.1.6	**Chemical Name:**	Hydrochloric Acid
	1.1.7	**Chemical Formula:**	HCl
1.2	**Recommended Uses:**		Household cleaning, swimming pool water pH control and neutralization.
1.3	**Company Identification:**		Hasa Inc. P.O. Box 802736 Santa Clarita, CA 91355
1.4	**Emergency Telephone Number:**		**CHEMTREC:** 1-800-424-9300 (24 hour)
1.5	**Non-Emergency Assistance:**		661-259-5848 (8 AM – 5 PM PST / PDT)

SECTION 2: HAZARD(S) IDENTIFICATION		
Health Hazard	Acute Toxicity (Oral):	Category 4
	Skin corrosion / irritation:	Category 1
	Serious eye damage / irritation	Category 1
	Specific Target Organ Toxicity (Single exposure)	Category 3 (respiratory tract irritation)
Physical Hazard	Corrosive to metals.	Category 1
Symbols		
Signal Word	**DANGER**	
Hazard Statement	Causes severe skin burns & eye damage. Harmful if swallowed. May cause respiratory irritation. Maybe corrosive to metals.	
Precautionary Statement	**Prevention**	
	Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Keep only in original container.	
	Response	
	If swallowed: Rinse mouth. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.	
	Storage	
	Store locked up. Store in a corrosive resistant container. Store in a well-ventilated place. Keep container tightly closed.	
	Disposal	
	Dispose of container/contents in accordance with local, regional, national, international regulations as specified.	

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS			
	Ingredient	**CAS No.**	**Weight % (Approx.)**
3.1	Hydrochloric Acid	7647-01-0	31.45%
3.2	Water	7789-20-0	68.55%

SECTION 4: FIRST-AID MEASURES

4.1.	**IF IN EYES**	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
4.2.	**IF ON SKIN OR CLOTHING**	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
4.3.	**IF INHALED**	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
4.4.	**IF SWALLOWED**	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

SECTION 5: FIRE-FIGHTING MEASURES

5.1	**Products of Combustion:**		Hydrogen and chlorine
5.2	**Fire Hazards in Presence of Various Substances:**		Reacts with many metals to liberate hydrogen gas which can form explosive mixtures with air.
5.3	**Explosion Hazards:**		Not sensitive.
5.4	**Fire Fighting Media and Instructions:**		
	5.4.1	**Extinguishing Media:**	Use extinguishing measures appropriate to local circumstances and the surrounding environment.
	5.4.2	**Small Fires:**	Use carbon dioxide, dry chemical, dry sand, alcohol-resistant foam or water spray.
	5.4.3	**Large Fires:**	Water spray, fog or alcohol-resistant foam. Move containers from fire area if you can do it without risk. Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material.
5.5	**Fire Involving Tank Cars / Trailer Loads:**		Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES		
6.1	**Small Spill:**	Gather up with a squeegee and place in pool and spa. If this is not possible, absorb with sand, diatomaceous earth or similar products and securely bag, and place in trash for collection.
6.2	**Large Spill:**	Steps to be taken in case material is released or spilled: Spills or discharges into the environment involving large quantities of Hydrochloric Acid should be controlled and cleaned-up according to a pre-determined, affirmative written Spill Prevention and Control Program. Refer to Section 15 for spill/release reporting information. Spills should be handled immediately by neutralization and dilution of the spilled product by the use of Soda Ash (Sodium Carbonate), Lime (Calcium Hydroxide), or Limestone (Calcium Carbonate) with large amounts of water. For an interior (inside a closed space) spill be aware that the use of Soda Ash, Lime and Limestone will evolve heat and carbon dioxide and that ample ventilation must be provided. If possible without personal risk, stop leak. Try to prevent the materials from entering drains, waterways, or sewers and dispose of in accordance with local regulations. Rinse exposed area with dilute sodium carbonate solution.

SECTION 7: HANDLING AND STORAGE		
7.1	**Handling:**	Keep away from skins and eyes. Do not inhale or swallow. Do not mix with chlorine type bleaches or other household chemicals. Whenever handling muriatic acid, wear protective clothing (goggles, old clothing and rubber gloves). Remove protective clothing and wash before reuse.
7.2	**Storage and Disposal:**	Store muriatic acid in a clean, dry place in the upright position. Keep out of reach of children, pets and other animals. Rinse empty container thoroughly before discarding.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION			
8.1	**Engineering Controls:**		Local exhaust to maintain levels below Permissible Exposure Limit (PEL).
8.2	**Personal Protection:**		When necessary, wear splash goggles or safety glasses and gloves.
8.3	**Personal Protection in case of a Large Spill:**		Wear splash goggles or safety glasses and gloves. If natural ventilation is insufficient, wear a NIOSH approved respirator.
8.4	**Exposure Guidelines:**		
	8.4.1	**ACGIH** (American Conference of Governmental and Industrial Hygienists) **TLV** (Threshold Limit Value)	5 ppm (7 mg/m^3) Ceiling
	8.4.2	**PEL** (OSHA Permissible Exposure Limit)	5 ppm (7 mg/m^3) Ceiling Limit
	8.4.3	**IDLH** (NIOSH Immediate Danger to Life & Health)	50 ppm (75 mg/m^3)
	8.4.4	**AIHA** (American Industrial Hygiene Association)	**ERPG – 1** (*The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing other than mild transient adverse health effects or perceiving a clearly defined objectionable odor.*): **3 ppm** **ERPG – 2** (*The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action.*): **20 ppm** **ERPG – 3** (*The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects.*): **150 ppm**

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES		
9.1	**Appearance:**	Colorless liquid.
9.2	**Odor:**	Irritating and pungent odor.
9.3	**Odor Threshold:**	4.7 ppm @ at 25 °C
9.4	**pH:**	<1.0
9.5	**Melting Point:**	Not applicable.
9.6	**Freezing point:**	-46.9°C (-52.5°F)
9.7	**Boiling Point & Boiling Range:**	85°C (185°F)
9.8	**Flash Point:**	No information available.
9.9	**Evaporation Rate:**	No information available.
9.10	**Flammability (solid, gas):**	Nonflammable and noncombustible.
9.11	**Upper / Lower Flammability or Explosive Limits:**	Not applicable.
9.12	**Vapor Pressure:**	40 mm Hg @ 30°C (86°F)
9.13	**Vapor Density:**	No information available.
9.14	**Relative Density (Specific Gravity):**	1.16 @ 15.5°C (60°F)
9.15	**Solubility in Water:**	Mixes with water in all concentrations.
9.16	**Partition Coefficient: (n-octanol / water):**	Not applicable.
9.17	**Auto-ignition Temperature:**	Not applicable.
9.18	**Decomposition Temperature:**	85°C. Rate of decomposition increases with heat.
9.19	**Molecular Weight:**	36.46 g/mole
9.20	**Viscosity:**	1.55 centipoises @ 30°C (86°F)

SECTION 10: STABILITY AND REACTIVITY		
10.1	**Stability:**	Stable under normal conditions of storage, handling, and use.
10.2	**Instability Temperature:**	85°C. Rate of decomposition increases with heat.
10.3	**Conditions of Instability:**	High heat, ultraviolet light.
10.4	**Incompatibility with Various Substances:**	Oxidizing agents, acids, nitrogen containing organic, metals, iron, copper, nickel, cobalt, organic materials, and ammonia. Corrosive to most metals with evolution of hydrogen gas, which may form explosive mixtures with air.
10.5	**Special Remarks on Reactivity:**	Rate of decomposition increases with heat.
10.6	**Hazardous Polymerization:**	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION		
11.1	**Routes of Entry:**	Eyes, skin, ingestion.
11.2	**Eye damage & skin corrosion:**	Causes eye burns. Contact with this material will cause burns to the skin, eyes and mucous membranes. Permanent eye damage including blindness could result.
11.3	**Acute Oral Toxicity (LD_{50}):**	NIOSH: 900 mg/kg (rabbit)
11.4	**Acute Inhalation Toxicity (LC_{50}):**	3124 mg/l, 1 Hour (rat)
11.5	**Toxic Effects on Humans:**	Harmful if swallowed. Causes digestive tract burns. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
11.6	**Carcinogenic [Cancer Potential] Information:**	
	NTP (National Toxicological Program 6th Annual Report on Carcinogens):	Not Listed.
	IARC (International Agency for Research on Cancer Monographs, V. 1-100):	Not Listed.
	Proposition 65, California only: (Safe Drinking Water and Toxic Enforcement Act of 1986):	Not Listed.
11.7	**Mutagenic Effects:**	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
11.8	**Signs and Symptoms of Exposure:**	Exposure to hydrochloric acid may cause severe burns at the contact points.
11.9	**Medical Conditions Generally Aggravated by Exposure:**	Exposure to fumes may aggravate dermatitis and breathing disorders.
11.10	**Health Hazards (Acute and Chronic):**	Hydrogen Chloride, both as a gas and in a solution as Hydrochloric Acid, is a corrosive substance and can cause severe and painful burns on contact with any part of the body or if taken internally. The mucous membranes of the eyes and the upper respiratory tract are especially susceptible to the irritating effects of high atmospheric concentrations of Hydrogen Chloride. The gas or vapor is so penetrating and pungent that when high concentrations do occur, those exposed should immediately leave the contaminated area.

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Ecotoxicity General:**	This product is toxic to fish and aquatic organisms. Do not contaminate water containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.
12.2	**Ecotoxicological Information:**	LC_{50} Shrimp 100 to 330 ppm/48 hr (salt water) LC_{50} Mosquito Fish 282 mg/L (24 to 96 hours) LC_{50} Green crabs 100 mg/L (96 hr produced no stress effects) LC_{50} Gold fish 180 mg/L (96 hours) Aquatic Hazard Concern Level : moderate
12.3	**Persistence and Degradation:**	When hydrochloric acid is spilled onto soil, it will begin to infiltrate. The presence of water in the soil will influence the rate of chemical movement in the soil. During transport through the soil, hydrochloric acid will dissolve some of the soil material, in particular those of a carbonate base. The acid will be expected to remain for transport down toward the ground water table. Hydrogen chloride in water dissociates almost completely, with the hydrogen ion captured by the water molecules to form the hydronium ion.
12.4	**Products of Biodegradation:**	Not pertinent.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not contaminate food or feed by storage, disposal, or cleaning of equipment. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination system (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Dispose of in accordance with all applicable local, county, State, and Federal regulations.

SECTION 14: TRANSPORT INFORMATION		
14.1	**Shipping Name:**	Hydrochloric Acid
14.2	**Hazard Class / Division:**	8
14.3	**Identification No.:**	UN 1789
14.4	**Packing Group:**	PG II
14.5	**Reportable Quantity (RQ):**	5,000 lb (1643 gallons)
14.6	**DOT Special Permit 6614:**	Hydrochloric acid may be shipped in deposit 1 gallon polyethylene bottles secured 4 per case in a plastic crate in accordance with DOT-SP-6614. In these cases, the special permit number "DOT-SP-6614" is included in the shipping description. The shipping description for return of empty deposit bottles and crates is "RESIDUE: LAST CONTAINED UN1789, HYDROCHLORIC ACID, 8, PGII, DOT-SP 6614".
14.7	**Deposit Pails, Carboys and Drums:**	The shipping description for return of empty deposit pails, carboys, and drum is "RESIDUE: LAST CONTAINED UN1789, HYDROCHLORIC ACID, 8, PGII".
14.8	**Materials of Trade (MOT) Exceptions.** Certain hazardous materials transported in small quantities as part of a business are subject to less regulation, because of the limited hazard they pose. These materials are known as Materials of Trade. The regulations that apply to MOTs are found in 49 CFR § 173.6.	
This information is not intended to convey all specific regulatory or operational requirements / information relating to this product. It Is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.		

SECTION 15: REGULATORY INFORMATION			
15.1	**U.S. Regulations:**		
	15.1.1	**OSHA HAZCOM** (Hazard Communication)	This material is considered hazardous under the HAZCOM standard (29 CFR 1910.1200).
	15.1.2	**OSHA PSM** (Process Safety Management):	Not regulated under PSM standard (29 CFR 1910.119).
	15.1.3	**EPA EPCRA** (EPA Emergency Planning and Community Right-to-know Act):	Not listed on Extremely Hazardous Substances and Their Threshold Planning Quantities. (Appendix A to 40 CFR Part 355)
	15.1.4	**EPA TSCA** (Toxic Substance Control Act):	All components are listed or exempted. TSCA 12(b): This product is not subject to export notification.
	15.1.5	**EPA CERCLA** (Comprehensive Environmental Response, Compensation, and Liability Act):	Reportable Quantity (RQ) under CERCLA: 5000 lbs. (1643 gallons).
	15.1.6	**EPA FIFRA** (Federal Insecticide, Fungicide, Fungicide, and Rodenticide Act):	Not regulated under FIFRA standard.
	15.1.7	**EPA RMP** (Risk Management Plan):	Not regulated under RMP. (40 CFR 68.130)
15.2	**State of California Regulations:**		
	15.2.1	**CDPR** (California Department of Pesticide Regulation):	Registration No: 10897-50008-AA (spray adjuvant)
	15.2.2	**CalARP** (California Accidental Release Prevention):	Not regulated.
15.3	**Canada Regulations:**		
	15.3.1	**WHMIS** (Workplace Hazardous Materials Information System):	WHMIS classification: D1A - Poisonous and infectious material - Immediate and serious effects - Very toxic E - Corrosive Materials
	15.3.2	**DSL** (Domestic Substances List):	All components of this product are on the DSL.
15.4	**International Inventory:**		
	15.4.1	**AICS** (Australian Inventory of Chemical Substances):	On inventory or in compliance with inventory.
	15.4.2	**KECI** (Korean Existing Chemicals Inventory):	On inventory or in compliance with inventory.
	15.4.3	**PICCS** (Philippine Inventory of Chemicals and Chemical Substances):	On inventory or in compliance with inventory.
	15.4.4	**IECSC** (Inventory of Existing Chemical Substances in China):	On inventory or in compliance with inventory.
	15.4.5	**NZIoC** (New Zealand Inventory of Chemicals):	On inventory or in compliance with inventory.

SECTION 16: OTHER INFORMATION

16.1	**HMIS III** (Hazardous Materials Identification System):		
	16.1.1	**HEALTH**	3
	16.1.2	**FLAMMABILITY**	0
	16.1.3	**PHYSICAL HAZARD**	0
	16.1.4	**PERSONAL PROTECTION**	**See Section 8**
16.2	**NFPA 704** (National Fire Protection Association):		
	16.2.1	**Health**	3
	16.2.2	**Flammability**	0
	16.2.3	**Instability**	0
	16.2.4	**Special**	None
16.3	**International Fire Code / International Building Code:**		Corrosive Liquid.
16.4	**ANSI** (American National Standards Institute):		
	16.4.1	**Hazardous Industrial Chemicals -** MSDSs-Preparation:	Complies with **ANSI Z400.1 – 2004.**
	16.4.2	**Hazardous Industrial Chemicals -** Precautionary Labeling:	Complies with **ANSI Z129.1 – 2006.**

Note: To convert concentrations in air (at 25°C) from ppm to mg/m³:

mg/m³ = (ppm) × (molecular weight of the compound) / (24.45)
For hydrochloric acid: 1 ppm = 1.49 mg/m³.

Disclaimer of Liability:

The information contained herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge and belief. NO WARRANTY OR GUARANTEE, express or implied, is made regarding the product performance, product stability, or as to any other condition of use, handling, transportation, and storage. Customer use, handling, transportation, and storage may involve additional safety and/or performance considerations. Our technical personnel will be happy to respond to questions regarding safe handling, storage, transportation, and use procedures. The safe handling, storage, transportation, and use procedures remain the sole responsibility of the customer. No suggestions for handling, storage, transportation, or use are intended as or to be construed as recommendations which may infringe on any existing patents or violate any Federal, State, and/or local law and/or regulation, ordinance, standard, etc. This Safety Data Sheet has been prepared by Hasa, Inc. staff from test reports and other information available in the public domain.

NK Salammoniac

3 pgs

JOHNSON MANUFACTURING COMPANY
Safety Data Sheet
To comply with 29CFR 1910.1200
OSHA's Hazard Communication Standard

Sal Ammoniac Bars, 24-100-00

1. PRODUCT AND COMPANY INFORMATION

Johnson Manufacturing Company
114 Lost Grove Road
Princeton IA 52768

Emergency Telephone 1-(563)-289-5123
CHEMTREC AFTER HOURS 1-(800)-424-9300
Revised 1/1/2015 by JMC Product Safety

2. HAZARD IDENTIFICATION

GHS Classification:
Acute Tox. 4 *
Skin Irrit 2
Eye Irrit. 2

GHS Label Elements:

AMMONIUM CHLORIDE
WARNING

H Codes: H302, H319
Harmful if swallowed
Harmful if inhaled
Causes severe eye irritation

P Codes:
P264, 280, 301+312, 330, 501, 405, 305+351+338+310, 337+313
Avoid breathing mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Use in a well ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation use respiratory protection. Do not breathe dust/fume/gas/mist/vapor/spray. Do not eat, drink or smoke when using this product. IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER/Doctor. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention if you feel unwell. IF INHALED: Remove victim to to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call POISON CENTER/Doctor. Wash thoroughly after use. Wash contaminated clothing before reuse. Store in a closed compatible container in cool dry place. Avoid release to the environment. Dispose of contents/container in accordance with specified local/regional/national/international regulations for disposal. Keep out of the reach of children. Read label and SDS prior to use.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS #	OSHA TWA	ACIGH TWA	Other limits	%
Ammonium Chloride	12125-02-9	10mg/M3	10mg/M3		

Only those ingredients listed in this section have been determined to be hazardous as defined in 29CFR 1910.1200.
An ingredient marked with an asterisk(*) is also listed in 29CFR 1910.1200(D) #4 as a known or suspected cancer hazard.

+ denotes a chemical regulated as toxic by the Environmental Protection Agency (EPA) as outlined in 40CFR Part 372 (section 313)

4. FIRST AID MEASURES

Signs and symptoms of exposure: Inhalation-Nose & throat irritation, headache, dizziness, difficulty breathing, coughing. Ingestion-nausea, vomiting, cramps. Skin-redness, burning, rash, dryness. Eye-redness, burning, tearing, blurred vision.

Medical conditions aggravated by exposure: Skin, kidney and respiratory conditions.

Emergency first aid procedures:
Skin: Flush with water immediately - Seek medical attention if necessary
Eyes: Flush with water for 15 minutes - Seek medical attention
Ingestion: DO NOT induce vomiting, drink large amounts of water - seek medical attention. Never give anything by mouth to an unconscious person

Inhalation: Remove to fresh air. Support respiration if required - Seek medical attention

5. FIREFIGHTING MEASURES

Extinguishing media: dry chemical.
Special fire fighting procedures: use self sustaining respiratory suit.
Unusual Fire and Explosion Hazards: May release ammonia hydrochloric acid and nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Methods and materials: Flush into chemical sewer or soak up with a suitable absorbent. Wear adequate protection as described in section 8.
Environmental Precautions: Avoid release to the environment. Collect spillage.

7. HANDLING & STORAGE

Wash thoroughly after use. Wash contaminated clothing before reuse. Store in a closed corrosive resistant container, with corrosive resistant liner, in cool dry place. Keep out of the reach of children. Read label and SDS prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limit Values: See section 3.
Respiratory Protection (type): Acid mask required for fumes above TWA.
Ventilation: Local Exhaust preferred Special: NE
Mechanical: OK Other: NE
Protective Gloves: plastic or rubber Eye Protection: Goggles or face shield
Other Protective Clothing or Equipment: as required to avoid contact.
Work/Hygienic Practices: Wash after use. Follow good industrial hygienic practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 640 C
Vapor Pressure (mm Hg): NE
Vapor Density: NE
Solubility in water: near 100%
Flash Point: NE (TOC)
Specific Gravity: 1.53
Melting Point: 428 F
Evaporation Rate: <1 (butyl acetate=1)
pH: NE
Flammable Limits: lel: NE uel: NE
Appearance and odor: White solid, odorless.

10. STABILITY AND REACTIVITY

Stability : STABLE Conditions to avoid : none

Incompatibility (materials to avoid): strong bases & acids, oxidizers, sulfides, halogens.
Hazardous Decomposition or Byproducts (Incomplete combustion): Ammonia, hydrochloric acid, chlorine, and nitrogen oxides.
Hazardous Polymerization: WILL NOT OCCUR Conditions to avoid: none

11. TOXICOLOGICAL INFORMATION

Routes of entry: Inhalation: yes Skin: no Ingestion: yes

Health Hazards (acute and chronic): Contact with material or fumes may cause skin, eye and respiratory tract irritation. Ingestion may cause digestive tract irritation. Gross or repeated inhalation may result in asthma like condition. Toxicity is considered low via inhalation and ingestion. Chronic exposure may result in respiratory tract and kidney effects. Studies show that potential health risks vary by individual. Always minimize exposure as a precaution.

Carcinogenicity: not determined NPT? no IARC Monographs? no

12. ECOLOGICAL INFORMATION

Toxicity: NE
Bio-accumulative Potential: NE
PBT & vPvB Assessment: NE
Persistence & Degradability: NE
Mobility in Soil: NE
Other Adverse Effects: NE

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: dispose of in accordance with all local state and federal regulations
Other Precautions: Avoid skin & eye contact, inhalation & ingestion of fumes and material. Wash contaminated clothing before reuse. Keep away from children.

14. TRANSPORT INFORMATION

DOT Classification: Non-Hazardous
Marine Pollutant: NE

15. REGULATORY INFORMATION

NFPA Classification (NFPA 325M, 8th edition)(Health, Flammability, Reactivity): 1-0-0

16. OTHER INFORMATION

The information and recommendations contained within this publication have been compiled from sources believed to be reliable and to represent the best information available to JOHNSON MANUFACTURING at the time of issue. No warranty, guarantee, or representation is made by JOHNSON MANUFACTURING nor does JOHNSON MANUFACTURING assume any responsibility in connection there within; nor can it be assumed that all acceptable safety measures or other safety measures may not be required under particular or exceptional conditions or circumstances.

NE = not established NA = not applicable

NUC 4291-08
9 pgs.

Nu-Calgon

SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**NU-BRITE (4291-01, 4291-05, 4291-08, 4891-08)**
Other means of identification	Not available.
Recommended use	Coil Cleaner / Degreaser
Recommended restrictions	None known.
Manufacturer information	Nu-Calgon 2008 Altom Court St. Louis, MO 63146 US Phone: 314-469-7000 / 800-554-5499 Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. Hazards Identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	May be corrosive to metals. Causes severe skin burns and eye damage.
Precautionary statement	
Prevention	Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.
Response	Absorb spillage to prevent material damage. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment (see information on this label).
Storage	Store in corrosive resistant container with a resistant inner liner. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	Not applicable.

3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Sodium hydroxide		1310-73-2	15-40
Alkyl polyglycoside		110615-47-9	1-5

Composition comments US GHS: The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

4. First Aid Measures

Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor/.
Skin contact	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Specific treatment (see information on this label). Immediately call a poison center/doctor/.
Eye contact	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.
Ingestion	If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center/doctor/.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance. Use of an impervious apron is recommended. Avoid contact with eyes and skin. Wear rubber gloves and chemical splash goggles. Keep out of reach of children.

5. Fire Fighting Measures

Suitable extinguishing media	Treat for surrounding material.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Firefighters should wear a self-contained breathing apparatus.
Special protective equipment and precautions for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
Hazardous combustion products	May include and are not limited to: Oxides of carbon.
Explosion data	
Sensitivity to mechanical impact	No.
Sensitivity to static discharge	No.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep out of low areas. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. Never return spills to original containers for re-use.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling	Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash thoroughly after handling. Ensure adequate ventilation. Do not get in eyes, on skin or on clothing. Use good industrial hygiene practices in handling this material. Keep container tightly closed. Avoid breathing vapors or mists of this product.

Conditions for safe storage, including any incompatibilities	Store locked up. Store in corrosive resistant container with a resistant inner liner. Store in a closed container away from incompatible materials. Keep only in the original container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure Controls/Personal Protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	Chemicals listed in section 3 that are not listed here do not have established limit values for ACGIH.
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear chemical goggles.
Skin protection	
Hand protection	Rubber gloves. Confirm with a reputable supplier first.
Other	Wear appropriate chemical resistant clothing. As required by employer code. Rubber apron recommended.
Respiratory protection	Wear positive pressure self-contained breathing apparatus (SCBA). Avoid breathing mists or vapors. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
Thermal hazards	Not applicable.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Wash hands before breaks and immediately after handling the product.

9. Physical and Chemical Properties

Appearance	Liquid
Physical state	Liquid.
Form	Liquid.
Color	Blue
Odor	Characteristic, Mild
Odor threshold	Not available.
pH	12.7 (1%) 14 (Concentrate)
Melting point/freezing point	32 °F (0 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Pour point	Not available.
Specific gravity	1.24
Partition coefficient (n-octanol/water)	Not available
Flash point	None to boiling
Evaporation rate	Equal to water
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available
Flammability limit - upper (%)	Not available
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available.
Solubility(ies)	Complete
Auto-ignition temperature	Not available
Decomposition temperature	Not available.
Viscosity	Water thin
Other information	
Bulk density	10.36 lb/gal
VOC (Weight %)	None

10. Stability and Reactivity

Reactivity	Reacts violently with acids. This product may react with oxidizing agents.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Do not mix with other chemicals. Hazardous vapours may be produced when mixed with chlorinated detergents or sanitizers.
Incompatible materials	Oxidizing agents. Acids.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon.

11. Toxicological Information

Routes of exposure	Eye, Skin contact, Inhalation, Ingestion.
Information on likely routes of exposure	
Ingestion	Causes digestive tract burns.
Inhalation	Prolonged inhalation may be harmful. May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity

Components	**Species**	**Test Results**
Alkyl polyglycoside (CAS 110615-47-9)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Not available	
Oral		
LD50	Rat	> 5000 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rabbit	1350 mg/kg

Components	Species	Test Results
Inhalation LC50	Not available	
Oral LD50	Not available	

Skin corrosion/irritation	Causes severe skin burns and eye damage.
Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.
Serious eye damage/eye irritation	Causes serious eye damage.
Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	Non-hazardous by WHMIS/OSHA criteria.
Mutagenicity	Non-hazardous by WHMIS/OSHA criteria.
Carcinogenicity	Non-hazardous by WHMIS/OSHA criteria.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	Non-hazardous by WHMIS/OSHA criteria.
Teratogenicity	Non-hazardous by WHMIS/OSHA criteria.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	Prolonged inhalation may be harmful. Non-hazardous by WHMIS/OSHA criteria.
Further information	Not available.
Name of Toxicologically Synergistic Products	Not available.

12. Ecological Information

Ecotoxicity	Components of this product have been identified as having potential environmental concerns. See below

Ecotoxicological data Components		Species	Test Results
Sodium hydroxide (CAS 1310-73-2)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	34.59 - 47.13 mg/L, 48 hours
Fish	LC50	Western mosquitofish (Gambusia affinis)	125 mg/L, 96 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

General

Canada: TDG Proof of Classification: In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue. If applicable, the technical name and the classification of the product will appear below.

U.S. Department of Transportation (DOT)

Basic shipping requirements:

UN number	UN3266
Proper shipping name	Corrosive liquid, basic, inorganic, n.o.s.
Technical name	Sodium hydroxide
Hazard class	8
Packing group	II
Special provisions	B2, IB2, T11, TP2, TP27
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN3266
Proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical name	SODIUM HYDROXIDE
Hazard class	8
Packing group	II
Special provisions	16
Packaging exceptions	<1L - Limited Quantity

IATA/ICAO (Air)

Basic shipping requirements:

UN number	UN3266
Proper shipping name	Corrosive liquid, basic, inorganic, n.o.s.
Technical name	Sodium hydroxide
Hazard class	8
Packing group	II

IMDG (Marine Transport)

Basic shipping requirements:

UN number	UN3266
Proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical name	Sodium hydroxide
Hazard class	8
Packing group	II

DOT

IATA; IMDG; TDG

15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS status Controlled

WHMIS classification Class E - Corrosive Material

WHMIS labeling

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - Illinois Chemical Safety Act: Listed substance

Sodium hydroxide (CAS 1310-73-2)

US - Minnesota Haz Subs: Listed substance

Sodium hydroxide (CAS 1310-73-2) SODIUM HYDROXIDE

US - New Jersey RTK - Substances: Listed substance

Sodium hydroxide (CAS 1310-73-2)

US - New York Release Reporting: Hazardous Substances: Listed substance

Sodium hydroxide (CAS 1310-73-2) SODIUM HYDROXIDE

US - New York Release Reporting: Hazardous Substances: Reportable quantity for releases to air

Sodium hydroxide (CAS 1310-73-2) SODIUM HYDROXIDE

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Sodium hydroxide (CAS 1310-73-2)

US. Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)

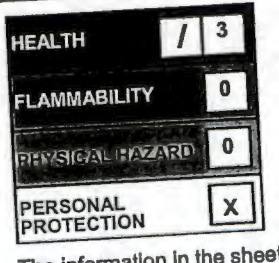
Inventory status

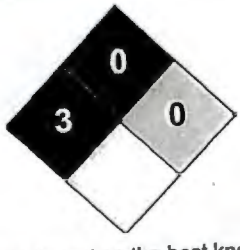
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0





Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

Issue date 10-February-2016

Effective date 10-February-2016

Expiry date 10-February-2019

Further information	For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.
Prepared by	Nu-Calgon Technical Service Phone: (314) 469-7000
Other information	This Safety Data Sheet was prepared to comply with the current OSHA Hazard Communication Standard (HCS) adoption of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

NUL 4330-08 8pgs

Nu-Calgon

SAFETY DATA SHEET

Issue Date 02-Jan-2015 **Revision Date** 02-Jan-2015 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier
Product Name Liquid Scale Dissolver

Other means of identification
Product Code 4330-01, 4330-05, 4330-08
Synonyms 4845-01, 4845-05

Details of the supplier of the safety data sheet
Company Name Nu-Calgon
2008 Altom Court
St. Louis, MO 63146
(800) 554-5449
http://www.nucalgon.com/

Emergency telephone number
Emergency Telephone Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

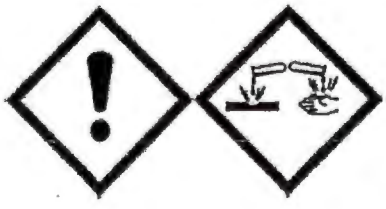
Acute toxicity - Oral	Category 5
Acute toxicity - Dermal	Not classified
Acute toxicity - Inhalation (Gases)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Label elements

Emergency Overview

Danger

Hazard statements
May be harmful if swallowed
Harmful if inhaled
Causes severe skin burns and eye damage
May cause respiratory irritation. May cause drowsiness or dizziness



Appearance Clear Orange **Physical state** Liquid **Odor** Pungent Acidic

Precautionary Statements - Prevention
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Specific Treatment (See Section 4 on the SDS)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continuerinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Other Information
Unknown Acute Toxicity 0.95% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight-%	Trade Secret
Hydrochloric Acid	7647-01-0	10-30	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General advice Immediate medical attention is required.

Skin Contact Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Eye contact Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Inhalation Remove to fresh air. Call a physician or poison control center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down. Clean mouth with water and drink afterwards plenty of water. Call a physician or poison control center immediately.

Self-protection of the first aider Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms Any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak.

Environmental precautions

Environmental precautions Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Dike far ahead of liquid spill for later disposal. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Prevent product from entering drains. Dam up. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation, especially in confined areas. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Incompatible materials Incompatible with oxidizing agents. Strong bases. Ammonia. Chlorinated compounds. Contact with metals may evolve flammable hydrogen gas. Metals. Incompatible with strong acids and bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrochloric Acid 7647-01-0	Ceiling: 2 ppm	(vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m³ Ceiling: 5 ppm Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³
2-Propanol 67-63-0	STEL: 400 ppm TWA: 200 ppm	TWA: 400 ppm TWA: 980 mg/m³ (vacated) TWA: 400 ppm (vacated) TWA: 980 mg/m³ (vacated) STEL: 500 ppm (vacated) STEL: 1225 mg/m³	IDLH: 2000 ppm TWA: 400 ppm TWA: 980 mg/m³ STEL: 500 ppm STEL: 1225 mg/m³

NIOSH IDLH Immediately Dangerous to Life or Health

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Controls Showers, Eyewash stations & Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene When using do not eat, drink or smoke. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Take off all contaminated clothing and wash it before reuse. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear Orange
Color	Orange
Odor	Pungent Acidic
Odor threshold	No Information available

Property	Values	Remarks • Method
pH	<1	

Specific Gravity	1.107
Viscosity	Water Thin
Melting point/freezing point	No Information available
Flash point	None
Boiling point / boiling range	No Information Available
Evaporation rate	No Information available
Flammability (solid, gas)	
Flammability Limits in Air	
Upper flammability limit:	Not Applicable
Lower flammability limit:	Not Applicable
Vapor pressure	No Information available
Vapor density	No Information available
Water solubility	Complete
Partition coefficient	No Information available
Autoignition temperature	No Information available
Decomposition temperature	No Information available

Other Information

Density Lbs/Gal	9.22
VOC Content (%)	0.09296

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
Hazardous polymerization does not occur.

Conditions to avoid
Exposure to air or moisture over prolonged periods. Keep out of reach of children.

Incompatible materials
Incompatible with oxidizing agents. Strong bases. Ammonia. Chlorinated compounds. Contact with metals may evolve flammable hydrogen gas. Metals. Incompatible with strong acids and bases.

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information The primary effects and toxicity of this material are due to it corrosive nature.

Inhalation Harmful by inhalation.

Eye contact Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including blindness.

Skin Contact Corrosive. Contact with skin may cause severe irritation and burns.

Ingestion Harmful if swallowed. Ingestion causes acute irritation and burns to the mucous membranes of the mouth, trachea, esophagus and stomach.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Hydrochloric Acid 7647-01-0	= 700 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 1.68 mg/L (Rat) 1 h
2-Propanol 67-63-0	= 1870 mg/kg (Rat)	= 4059 mg/kg (Rabbit)	= 72600 mg/m³ (Rat) 4 h

Information on toxicological effects

Symptoms Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No Information available.
Germ cell mutagenicity No Information available.
Carcinogenicity This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B). The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrochloric Acid 7647-01-0	Yes	Group 3	Yes	Yes

IARC (International Agency for Research on Cancer)
Not classifiable as a human carcinogen

Reproductive toxicity No Information available.
STOT - single exposure No Information available.
STOT - repeated exposure No Information available.
Chronic toxicity Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risk of irreversible effects.
Target organ effects EYES, Respiratory system, Skin.
Aspiration hazard No Information available.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity 0.95% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document .

12. ECOLOGICAL INFORMATION

Ecotoxicity

24.045% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Hydrochloric Acid 7647-01-0	Yes	282: 96 h Gambusia affinis mg/L LC50 static	Yes
Sodium Tripolyphosphate 7758-29-4	Yes	1650: 48 h Leuciscus idus mg/L LC50	Yes
2-Propanol 67-63-0	1000: 96 h Desmodesmus subspicatus mg/L EC50 1000: 72 h Desmodesmus subspicatus mg/L EC50	9640: 96 h Pimephales promelas mg/L LC50 flow-through 11130: 96 h Pimephales promelas mg/L LC50 static 1400000: 96 h Lepomis macrochirus µg/L LC50	13299: 48 h Daphnia magna mg/L EC50

Persistence and degradability
NOT READILY BIODEGRADABLE.

Bioaccumulation
No Information available.

Other adverse effects No Information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Do not reuse container.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. TRANSPORT INFORMATION

This corrosive material, as per 49 CFR §173.154 and when the product meets the packaging requirements of 49 CFR §173.154 (b)(2) [inner packagings not over 5.0 L (1.3 gallons) net capacity each for liquid] is excepted from labeling and placarding requirements so long as the material is not offered for transport by aircraft

DOT

UN/ID No.	UN1789
Proper shipping name	Hydrochloric acid
Hazard Class	8
Packing Group	II
Special Provisions	A3, A6, B3, B15, IB2, N41, T8, TP2
Description	UN1789, Hydrochloric acid solution, 8, II
Emergency Response Guide Number	157

TDG

UN/ID No.	UN1789
Proper shipping name	Hydrochloric acid Hydrochloric acid solution
Hazard Class	8
Packing Group	II
Description	UN1789, Hydrochloric acid solution, 8, II

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Hydrochloric Acid - 7647-01-0	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Hydrochloric Acid 7647-01-0	5000 lb	Yes	Yes	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Hydrochloric Acid 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Hydrochloric Acid 7647-01-0	X	X	X
2-Propanol 67-63-0	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not Applicable

16. OTHER INFORMATION

NFPA	**Health hazards** 3	**Flammability** 0	**Instability** 0	**Physical and Chemical Properties** Yes
HMIS	**Health hazards** 3	**Flammability** 0	**Physical hazards** 0	**Personal protection** D

Issue Date 02-Jan-2015
Revision Date 02-Jan-2015
Revision Note
No Information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

OT-31166
7 pgs

SAFETY DATA SHEET

1. Identification

Product identifier Oatey Plumber's Putty

Other means of identification

Product code 1705E

Synonyms Part Numbers: 31166, 31167, 31170, 31174, 48003, 48004

Recommended use Plumbing Mastic

Recommended restrictions Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Limestone	1317-65-3	60-90
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	5-30
Crystalline silica (Quartz)	14808-60-7	<1
Other components below reportable levels		9.85

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Most important symptoms/effects, acute and delayed	Coughing.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Use water spray to cool unopened containers.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	PEL	5 mg/m3	Mist.
		2000 mg/m3	
		500 ppm	
Limestone (CAS 1317-65-3)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.3 mg/m3	Total dust.
		0.1 mg/m3	Respirable.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	TWA	5 mg/m3	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	Ceiling	1800 mg/m3	
	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Limestone (CAS 1317-65-3)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear suitable protective clothing.

Respiratory protection Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Putty.

Color Off-white.

Odor Slight.

Odor threshold Not available.

pH Not applicable

Melting point/freezing point Not available.

Initial boiling point and boiling range	Not determined
Flash point	> 212.0 °F (> 100.0 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.87
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	> 500000 cP
Other information	
VOC (Weight %)	20 g/l

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Acids. Fluorine.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure	
Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Coughing.
Information on toxicological effects	
Acute toxicity	Not available.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.

Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Crystalline silica (Quartz) (CAS 14808-60-7)	1 Carcinogenic to humans.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Crystalline silica (Quartz) (CAS 14808-60-7)	Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Crystalline silica (Quartz) (CAS 14808-60-7)
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)
Limestone (CAS 1317-65-3)

US. New Jersey Worker and Community Right-to-Know Act

Crystalline silica (Quartz) (CAS 14808-60-7)
Limestone (CAS 1317-65-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Crystalline silica (Quartz) (CAS 14808-60-7)
Limestone (CAS 1317-65-3)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Crystalline silica (Quartz) (CAS 14808-60-7)
Methanol (CAS 67-56-1)

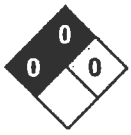
International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 22-April-2015

Revision date	-
Version #	01
HMIS® ratings	Health: 0 Flammability: 0 Physical hazard: 0
NFPA ratings	
Disclaimer	Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

OT 31263 7pgs

SAFETY DATA SHEET

1. Identification

Product identifier Great Blue Pipe Joint Compound

Other means of identification

SDS number 1704E

Synonyms Part Numbers: 31261, 31262, 32163, 31265, 48330, 48332, 48333

Recommended use Pipe Joint Compound for Threaded Metal Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	30-60
Kaolin	1332-58-7	10-30
Titanium dioxide	13463-67-7	3-7
Cellulose	9004-34-6	1-5
Crystalline silica (Quartz)	14808-60-7	< 0.8

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	The product is immiscible with water and will sediment in water systems. Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid prolonged exposure. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Cellulose (CAS 9004-34-6)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	PEL	5 mg/m3	Mist.
		2000 mg/m3	
		500 ppm	
Kaolin (CAS 1332-58-7)	PEL	5 mg/m3	Respirable fraction.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
		15 mg/m3	Total dust.
Titanium dioxide (CAS 13463-67-7)	PEL	15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.3 mg/m3	Total dust.
		0.1 mg/m3	Respirable.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Cellulose (CAS 9004-34-6)	TWA	10 mg/m3	
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	TWA	5 mg/m3	Inhalable fraction.
Kaolin (CAS 1332-58-7)	TWA	2 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Cellulose (CAS 9004-34-6)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total
Crystalline silica (Quartz) (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Kaolin (CAS 1332-58-7)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear suitable protective clothing.

Respiratory protection Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid paste.
Color	Blue.
Odor	Odorless
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	> 212.0 °F (> 100.0 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	< 1
Relative density	1.2
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	25000 cP
Other information	
VOC (Weight %)	11 g/l

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Acids. Fluorine.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Information on toxicological effects

Acute toxicity	Not available.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)

IARC Monographs. Overall Evaluation of Carcinogenicity

Crystalline silica (Quartz) (CAS 14808-60-7)	1 Carcinogenic to humans.
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	3 Not classifiable as to carcinogenicity to humans.
Titanium dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Crystalline silica (Quartz) (CAS 14808-60-7)	Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.
This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Cellulose (CAS 9004-34-6)
Crystalline silica (Quartz) (CAS 14808-60-7)
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)
Kaolin (CAS 1332-58-7)
Titanium dioxide (CAS 13463-67-7)

US. New Jersey Worker and Community Right-to-Know Act

Cellulose (CAS 9004-34-6)
Crystalline silica (Quartz) (CAS 14808-60-7)
Kaolin (CAS 1332-58-7)
Titanium dioxide (CAS 13463-67-7)

US. Pennsylvania Worker and Community Right-to-Know Law

Cellulose (CAS 9004-34-6)
Crystalline silica (Quartz) (CAS 14808-60-7)
Kaolin (CAS 1332-58-7)
Titanium dioxide (CAS 13463-67-7)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Crystalline silica (Quartz) (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	05-February-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 0 Flammability: 0 Physical hazard: 0
Disclaimer	Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

OTG 30894 10 PAGES

SAFETY DATA SHEET

1. Identification

Product identifier Rain-R Shine Blue PVC Cement

Other means of identification

Product code 1104E

Synonyms Part Numbers: 30890, 30891, 30893, 30894, 30895, 30896, 31954, 31955, 31956, 31957

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	40-70
Polyvinyl chloride	9002-86-2	10-20
Acetone	67-64-1	5-15
Cyclohexanone	108-94-1	5-15
Methyl ethyl ketone	78-93-3	5-15
Silica, amorphous, fumed	112945-52-5	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3 50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3 200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3 200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3 15 mg/m3	Respirable fraction. Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	0.8 mg/m3
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	6 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1)	Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Translucent liquid.
Color	Clear.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.92 +/- 0.02

Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1200 - 2500 cP
Viscosity temperature	77 °F (25 °C)
Other information	
Bulk density	7.7 lb/gal
VOC (Weight %)	443 g/l SQACMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours

Components	Species	Test Results
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 34014 LBS, Acetone RQ = 34247 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer Central nervous system Liver Blood Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

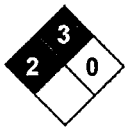
Issue date 05-27-2015

Revision date -

Version # 01

HMIS® ratings Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings



Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

OTG 31848
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MSDS No: CEM230E8
Issue Date: 12 Nov 2008

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Trade Name:	OATEY LO-V.O.C. PVC MEDIUM CLEAR CEMENT
Product No.:	31845, 31846, 31847, 31848, 31849
Product Use:	Cement for PVC Plastic Pipe
Formula:	PVC Resin in Solvent Solution
Synonyms:	PVC Plastic Pipe Cement
Firm Name & Mailing Address:	OATEY CO. 4700 West 160th Street P.O. Box 35906 Cleveland, Ohio 44135, U.S.A. http://www.oatey.com
Oatey Phone Number:	(216) 267-7100 or (800) 321-9532.
Emergency Phone Numbers:	For Emergency First Aid call 1-877-740-5015. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1-703-527-3887.
Prepared By:	Technical Department
Preparation Date:	November 12, 2008

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS:	%:wt/wt	CAS NUMBER:	ACGIH TLV TWA:	OSHA PEL TWA:	OTHER:
Tetrahydrofuran	38 - 50%	109-99-9	50 ppm(skin) 100 ppm STEL	200 ppm	25 ppm (Mfg)
Methyl Ethyl Ketone	12 - 20%	78-93-3	200 ppm 300 ppm STEL	200 ppm	None
PVC Resin (Non-hazardous)	12 - 20%	9002-86-2	10 mg/m3	15 mg/m3	None
Acetone	10 - 20%	67-64-1	500 ppm 750 ppm	1000 ppm	None
Cyclohexanone	7 - 14%	108-94-1	20 ppm(skin) 50 ppm STEL	50 ppm	None
Amorphous Fumed Silica (Non-hazardous)	1 - 5%	112945-52-5	10 mg/m3	None Established	None

OSHA Hazard Classification: Flammable, irritant, organ effects

SECTION 3 HAZARDS IDENTIFICATION

Emergency Overview:
Clear liquid with an ether-like odor. Extremely flammable liquid and vapor. Vapors may cause flash fire. May cause eye and skin irritation. Inhalation of vapors or mist may cause respiratory irritation and central nervous system effects. Swallowing may cause irritation, nausea, vomiting, diarrhea and kidney or liver disorders. Aspiration hazard. May be fatal if swallowed. Symptoms may be delayed.

SECTION 4 FIRST AID MEASURES

CALL 1-877-740-5015 or 1-303-623-5716 COLLECT

Skin: Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with Oatey Plumber's Hand Cleaner or baby oil.

Eyes: If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

Inhalation: If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

Ingestion: **DO NOT INDUCE VOMITING.** Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

SECTION 5 FIRE FIGHTING MEASURES

Flashpoint / Method:	14 - 23 Degrees F. (-10 to -5 Degrees C) / CCCFP
Flammability:	LEL = 1.8 % Volume, UEL = 11.8 % Volume
Extinguishing Media:	Use dry chemical, CO2, or foam to extinguish fire. Cool fire exposed container with water. Water may be ineffective as an extinguishing agent.
Special Fire Fighting Procedure:	Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored
Unusual Fire and Explosion Hazards:	Extremely flammable liquid. Keep away from heat and all sources of ignition including sparks, flames, lighted cigarettes and pilot lights. Containers may rupture or explode in the heat of a fire. Vapors are heavier than air and may travel to a remote ignition source and flash back. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.
Hazardous Decomposition Products:	Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:	Remove all sources of ignition and ventilate area. Stop leak if it can be done without risk. Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high. Soak up spill with an inert absorbent such as sand, earth or other non-combusting material. Put absorbent material in covered, labeled metal containers. Prevent liquid from entering watercourses, sewers and natural waterways. Report releases to authorities as required. See Section 13 for disposal information.

SECTION 7 HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Use with adequate ventilation (equivalent to outdoors). Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use.
Storage:	Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.
Other:	"Empty" containers retain product residue and can be hazardous. Follow all MSDS precautions in handling empty containers. Do not cut or weld on or near empty or full containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation:	Open doors & windows. Provide ventilation capable of maintaining emissions at the point of use below recommended exposure limits. If used in enclosed area, use exhaust fans. Exhaust fans should be explosion-proof or set up in a way that flammable concentrations of solvent vapors are not exposed to electrical fixtures or hot surfaces.
Respiratory Protection:	For operations where the exposure limit may be exceeded, a NIOSH approved organic vapor respirator or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.
Skin Protection:	Rubber gloves are suitable for normal use of the product. For long exposures chemical resistant gloves may be required such as 4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

Eye Protection: Safety glasses with side shields or safety goggles.

Other: Eye wash and safety shower should be available.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	151 Degrees F / 66 Degrees C
Melting Point:	Not applicable
Vapor Pressure:	145 mmHg @ 20 Degrees C
Vapor Density:	(Air = 1) 2.5
Volatile Components:	80-84%
Solubility In Water:	Negligible
pH:	Not applicable
Specific Gravity:	0.93 +/- 0.02 @ 20 Degrees C
Evaporation Rate:	(BUAC = 1) = 5.5 - 8.0
Appearance:	Clear Liquid
Odor:	Ether-Like
Will Dissolve In:	Tetrahydrofuran
Material Is:	Liquid

SECTION 10 STABILITY AND REACTIVITY

Stability:	Stable.
Conditions To Avoid:	Avoid heat, sparks, flames and other sources of ignition.
Hazardous Decomposition Products:	Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.
Incompatibility/ Materials To Avoid:	Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

Hazardous Polymerization: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Inhalation: Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Skin: May cause irritation with redness, itching and pain. Methyl ethyl ketone and cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.

Eye: Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.

Ingestion: Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

Chronic Toxicity: Prolonged or repeated overexposure cause dermatitis and damage to the kidney, liver, lungs and central nervous system.

Toxicity Data:

Acetone:	Oral rat LD50: 5,800 mg/kg Inhalation rat LC50: 50,100 mg/m3/8 hours
Cyclohexanone:	Oral rat LD50: 1,620 mg/kg Inhalation rat LC50: 8,000 ppm/4 hours Skin rabbit LD50: 1 ml/kg
Tetrahydrofuran:	Oral rat LD50: 1,650 mg/kg Inhalation rat LC50: 21,000 ppm/3 hours
Ethanol Ethyl Alcohol:	Oral rat LD50: 2,[illegible] mg/kg Inhalation rat LC50: 20,000 mg/m3/8 hours Skin rabbit LD50: 2,[illegible] mg/kg

Sensitization: [illegible]

Carcinogenicity: None of the components are listed as a carcinogen or suspect carcinogen by NTP, IARC or OSHA. The National Toxicology Program has reported that exposure of mice and rats to tetrahydrofuran (THF) vapor levels up to 1800 ppm 6 hr/day, 5 days/week for their lifetime caused an increased incidence of kidney tumors in male rats and liver tumors in female mice. The significance of these findings for human health is unclear at this time, and may be related to "species specific" effects. Elevated incidences of tumors in humans have not been reported for THF. ACGIH has classified cyclohexanone (CYH) and tetrahydrofuran as "A3," Confirmed Animal Carcinogens with Unknown Relevance to Humans.

Mutagenicity: Cyclohexanone has been positive in bacterial and mammalian assays. Acetone, methyl ethyl ketone and tetrahydrofuran are generally thought not to be mutagenic.

Reproductive Toxicity: Methyl ethyl ketone and cyclohexanone have been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Medical Conditions Aggravated By Exposure: Persons with pre-existing skin, lung, kidney or liver disorders may be at increased risk from exposure to this product.

SECTION 12 ECOLOGICAL INFORMATION

This product is not expected to be toxic to aquatic organisms.
Cyclohexanone: 96 hour LC50 values for fish is over 100 mg/l.
Tetrahydrofuran: 96 hour LC50 fathead minnow: 2160 mg/L.
Acetone: 96 hour LC50 for fish is greater than 100 mg/L.
Methyl Ethyl Ketone: 96 hour LC50 for fish is greater than 100 mg/L.

VOC Information: This product emits VOC's (volatile organic compounds) in its use. Make sure that use of this product complies with local VOC emission regulations, where they exist.

VOC Level: Maximum 510 g/L per SCAQMD Test Method 316A.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with current local, state and federal regulations.
RCRA Hazardous Waste Number: U002, U057, U159, U213
EPA Hazardous Waste ID Number: D001, D035, F003, F005
EPA Hazard Waste Class: Ignitable Waste. Toxic Waste (Methyl Ethyl Ketone content)

SECTION 14 TRANSPORT INFORMATION

	Less than 1 Liter (0.3 gal)	Greater than 1 Liter (0.3 gal)
DOT		
UN/NA Number:	None	UN1133
Proper Shipping Name:	Consumer Commodity	Adhesives
Hazard Class:	ORM-D	3
Packing Group:	None	PGII
Hazard Labels:	None	Flammable Liquid
IMDG		
UN Number:	UN1133	UN1133
Proper Shipping Name:	Adhesives	Adhesives
Hazard Class:	3	3
Packing Group:	II	II
Label:	None (Limited Quantities are excepted from labeling)	Class 3 (Flammable Liquid)
Flashpoint (Deg C)	-10 to [illegible] Degrees C	-10 to -5 Degrees C

2008 North American Emergency Response Guidebook Number: 12[illegible]

SECTION 15 REGULATORY INFORMATION

Hazard Category for Section 311/312:	Acute Health, Chronic Health, Flammable
Section 302 Extremely Hazardous Substances (TPQ):	This product does not contain chemicals regulated under SARA Section 302.
Section 313 Toxic Chemicals:	This product does not contain chemicals subject to SARA Title III Section 313 Reporting requirements.
CERCLA 103 Reportable Quantity:	Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for the product, based on the RQ for Tetrahydrofuran (50% maximum) of 2,000 lbs, is 1,667 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
California Proposition 65:	This product contains trace amounts of chemicals known to the State of California to cause cancer. Under normal use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. Oatey Strongly encourages the use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 to minimize exposure to these chemicals.
TSCA Inventory:	All of the components of this product are listed on the TSCA inventory.
Canadian WHIMS Classification:	Class B, Division 2; Class D, Division 2, Subdivision B; Class D, Division 2, Subdivision A. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

SECTION 16 OTHER INFORMATION

NFPA and HMIS:

NFPA Hazard Signal:	Health: 2	Flammability: 3	Reactivity: 1	Special: None
HMIS Hazard Signal:	Health: 2*	Flammability: 3	Reactivity: 1	PPE: G

Disclaimer:
The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, Oatey cannot give any guarantees regarding information from other sources, and expressly does not make warranties, nor assumes any liability for its use.

24285K42, 74605A42,43,86

MATERIAL SAFETY DATA SHEET

SECTION 1 **PRODUCT AND COMPANY IDENTIFICATION**

Trade Name: OATEY LO-V.O.C. PURPLE PRIMER - NSF LISTED
Product No.: 31900, 31901, 31902, 31903, 31904
Product Use: Primer for PVC and CPVC Plastic Pipe
Formula: See Section 2
Synonyms: Plastic Pipe Primer
Firm Name & Mailing Address: OATEY CO. 4700 West 160th Street P.O. Box 35906 Cleveland, Ohio 44135, U.S.A. http://www.oatey.com
Oatey Phone Number: (216) 267-7100 or (800) 321-9532
Emergency Phone Numbers: For Emergency First Aid call 1-877-740-5015. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1-703-527-3887.
Prepared By: Technical Department
Preparation Date: December 11, 2008

SECTION 2 **COMPOSITION/INFORMATION ON INGREDIENTS**

INGREDIENTS:	%wt/wt:	CAS NUMBER:	ACGIH TLV TWA:	OSHA PEL TWA:	OTHER:
Methyl Ethyl Ketone	20 - 40%	78-93-3	200 ppm 300 ppm STEL	200 ppm	None
Cyclohexanone	10 - 30%	108-94-1	20 ppm(skin) 50 ppm STEL	50 ppm	None
Tetrahydrofuran	15 - 35%	109-99-9	50 ppm (skin) 100 ppm STEL	200 ppm	25 ppm (Mfg)
Acetone	20 - 40%	67-64-1	500 ppm 750 ppm STEL	1000 ppm	None

OSHA Hazard Classification: Flammable, irritant, organ effects

SECTION 3 **HAZARDS IDENTIFICATION**

Emergency Overview:
Purple liquid with an ether-like odor. Extremely flammable liquid and vapor. Vapors may cause flash fire. May cause eye and skin irritation. Inhalation of vapors or mist may cause respiratory irritation and central nervous system effects. Swallowing may cause irritation, nausea, vomiting, diarrhea and kidney or liver disorders. Aspiration hazard. May be fatal if swallowed. Symptoms may be delayed.

SECTION 4 **FIRST AID MEASURES**

CALL 1-877-740-5015 or 1-303-623-5716 COLLECT

Skin: Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with Oatey Plumber's Hand Cleaner or baby oil.

Eyes: If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

Inhalation: If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

Ingestion: **DO NOT INDUCE VOMITING.** Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

SECTION 5 **FIRE FIGHTING MEASURES**

Flashpoint / Method: [illegible] Degrees F. (-10 to -5 [illegible]) / [illegible]
Flammability: [illegible] = [illegible], [illegible] = 11.[illegible]
Extinguishing: [illegible] dry chemical, [illegible], or [illegible] extinguish fire. [illegible]

Media:	exposed container with water. Water may be ineffective as an extinguishing agent.
Special Fire Fighting Procedure:	Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored
Unusual Fire and Explosion Hazards:	Extremely flammable liquid. Keep away from heat and all sources of ignition including sparks, flames, lighted cigarettes and pilot lights. Containers may rupture or explode in the heat of a fire. Vapors are heavier than air and may travel to a remote ignition source and flash back. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.
Hazardous Decomposition Products:	Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:	Remove all sources of ignition and ventilate area. Stop leak if it can be done without risk. Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high. Soak up spill with an inert absorbent such as sand, earth or other non-combusting material. Put absorbent material in covered, labeled metal containers. Prevent liquid from entering watercourses, sewers and natural waterways. Report releases to authorities as required. See Section 13 for disposal information.

SECTION 7 HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Use with adequate ventilation (equivalent to outdoors). Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use.
Storage:	Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.
Other:	"Empty" containers retain product residue and can be hazardous. Follow all MSDS precautions in handling empty containers. Do not cut or weld on or near empty or full containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation:	Open doors & windows. Provide ventilation capable of maintaining emissions at the point of use below recommended exposure limits. If used in enclosed area, use exhaust fans. Exhaust fans should be explosion-proof or set up in a way that flammable concentrations of solvent vapors are not exposed to electrical fixtures or hot surfaces.
Respiratory Protection:	For operations where the exposure limit may be exceeded, a NIOSH approved organic vapor respirator or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.
Skin Protection:	Rubber gloves are suitable for normal use of the product. For long exposures chemical resistant gloves may be required such as 4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.
Eye Protection:	Safety glasses with side shields or safety goggles.
Other:	Eye wash and safety shower should be available.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	151 Degrees F / 66 Degrees C
Melting Point:	Not applicable
Vapor Pressure:	145 mmHg @ 20 Degrees C
Vapor Density:	(Air = 1) 2.5
Volatile Components:	99.96%
Solubility In Water:	Negligible
pH:	Not applicable
Specific Gravity:	0.84 +/- 0.02 @ 20 Degrees C
Evaporation Rate:	(BUAC = 1) = 5.5 - 8.0
Appearance:	Purple Liquid
Odor:	Ether-Like
Will Dissolve In:	Tetrahydrofuran
Material Is:	Liquid

SECTION 10 STABILITY AND REACTIVITY

Stability:	Stable.
Conditions To Avoid:	Avoid heat, sparks, flames and other sources of ignition.
Hazardous Decomposition Products:	Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.
Incompatibility/ Materials To Avoid:	Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.
Hazardous Polymerization:	Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Inhalation:	Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.
Skin:	May cause irritation with redness, itching and pain. Methyl ethyl ketone and cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.
Eye:	Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.
Ingestion:	Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.
Chronic Toxicity:	Prolonged or repeated overexposure cause dermatitis and damage to the kidney, liver, lungs and central nervous system.
Toxicity Data:	Acetone: Oral rat LD50: 5,800 mg/kg Inhalation rat LC50: 50,100 mg/m3/8 hours Cyclonexanone: Oral rat LD50: 1,620 mg/kg Inhalation rat LC50: 8,000 ppm/4 hours Skin rabbit LD50: 1 mL/kg Tetrahydrofuran: Oral rat LD50: 1,650 mg/kg Inhalation rat LC50: 21,000 ppm/3 hours Methyl Ethyl Ketone: Oral rat LD50: 2,737 mg/kg Inhalation rat LC50: 23,500 mg/m3/8 hours Skin rabbit LD50: 6,480 mg/kg
Sensitization:	None of the components are known to cause sensitization.
Carcinogenicity:	None of the components are listed as a carcinogen or suspect carcinogen by NTP, IARC or OSHA. The National Toxicology Program has published that exposure of mice and rats to tetrahydrofuran (THF) vapor levels up to 1,800 ppm 6 hr/day, 5 days/week for their lifetime caused an increased incidence of kidney tumors in male

rats and liver tumors in female mice. The significance of these findings for human health is unclear at this time, and may be related to "species specific" effects. Elevated incidences of tumors in humans have not been reported for THF. ACGIH has classified cyclohexanone (CYH) and tetrahydrofuran as "A3," Confirmed Animal Carcinogens with Unknown Relevance to Humans.

Mutagenicity: Cyclohexanone has been positive in bacterial and mammalian assays. Acetone, methyl ethyl ketone and tetrahydrofuran are generally thought not to be mutagenic.

Reproductive Toxicity: Methyl ethyl ketone and cyclohexanone have been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Medical Conditions Aggravated By Exposure: Persons with pre-existing skin, lung, kidney or liver disorders may be at increased risk from exposure to this product.

SECTION 12 ECOLOGICAL INFORMATION

This product is not expected to be toxic to aquatic organisms.
Cyclohexanone: 96 hour LC50 values for fish is over 100 mg/1.
Tetrahydrofuran: 96 hour LC50 fathead minnow: 2160 mg/L.
Acetone: 96 hour LC50 for fish is greater than 100 mg/L.
Methyl Ethyl Ketone: 96 hour LC50 for fish is greater than 100 mg/L.

VOC Information: This product emits VOC's (volatile organic compounds) in its use. Make sure that use of this product complies with local VOC emission regulations, where they exist.

VOC Level: Maximum 550 g/L per SCAQMD Test Method 316A.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with current local, state and federal regulations.
RCRA Hazardous Waste Number: U002, U057, U159, U213
EPA Hazardous Waste ID Number: D001, D035, F003, F005
EPA Hazard Waste Class: Ignitable Waste. Toxic Waste (Methyl Ethyl Ketone content)

SECTION 14 TRANSPORT INFORMATION

	Less than 1 Liter (0.3 gal)	Greater than 1 Liter (0.3 gal)
DOT		
UN/NA Number:	None	UN1133
Proper Shipping Name:	Consumer Commodity	Adhesives
Hazard Class:	ORM-D	3
Packing Group:	None	PGII
Hazard Labels:	None	Flammable Liquid
IMDG		
UN Number:	UN1133	UN1133
Proper Shipping Name:	Adhesives	Adhesives
Hazard Class:	3	3
Packing Group:	II	II
Label:	None (Limited Quantities are excepted from labeling)	Class 3 (Flammable Liquid)
Flashpoint (deg C)	-10 to -5 Degrees C	-10 to -5 Degrees C

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SECTION 15 REGULATORY INFORMATION

Hazard Category for Section 311/312: Acute Health, Chronic Health, Flammable

Section 302 Extremely Hazardous Substances (TPQ): This product does not contain chemicals regulated under SARA Section 302.

Section 313 Toxic Chemicals: This product does not contain chemicals subject to

CERCLA 103 Reportable Quantity:	SARA Title III Section 313 Reporting requirements. Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for the product, based on the RQ for Tetrahydrofuran (30% maximum) of 1,000 lbs, is 3,333 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
California Proposition 65:	This product does not contain any chemicals subject To California Proposition 65 regulation.
TSCA Inventory:	All of the components of this product are listed on the TSCA inventory.
Canadian WHIMS Classification:	Class B, Division 2; Class D, Division 2, Subdivision B; Class D, Division 2, Subdivision A. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

SECTION 16 OTHER INFORMATION

NFPA and HMIS:

NFPA Hazard Signal:	Health: 2	Flammability: 3	Reactivity: 1	Special: None
HMIS Hazard Signal:	Health: 2*	Flammability: 3	Reactivity: 1	PPE: G

Disclaimer:
The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, Oatey cannot give any guarantees regarding information from other sources, and expressly does not make warranties, nor assumes any liability for its use.

SAFETY DATA SHEET

OTG 31910 14
10 PAGES

1. Identification

Product identifier **Oatey CPVC Flowguard Gold UVI One-Step Yellow Cement**

Other means of identification

Product code 1203E

Synonyms Part Numbers: 31910(TV), 31911(TV), 31912, 31913, 31914, 31656, 31657, 32200, 32201, 32202, 32203, 31660, 31661, 31662, 31663, 31917, 31918, 31919

Recommended use Joining CPVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	30-60
Methyl ethyl ketone	78-93-3	10-30
Ethene, chloro-, homopolymer, chlorinated	68648-82-8	10-20
Acetone	67-64-1	5-15
Cyclohexanone	108-94-1	5-15
Silica, amorphous, fumed	112945-52-5	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3 50 ppm
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3 200 ppm
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3 200 ppm

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	0.8 mg/m3

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
	TWA	500 ppm
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm
	TWA	20 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm
	TWA	50 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	6 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1) — Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1) — Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

Appropriate engineering controls: Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

- **Eye/face protection**: Face shield is recommended. Wear safety glasses with side shields (or goggles).
- **Skin protection**
  - **Hand protection**: Wear appropriate chemical resistant gloves.
  - **Other**: Wear appropriate chemical resistant clothing.
- **Respiratory protection**: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
- **Thermal hazards**: Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations: When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

- **Physical state**: Liquid.
- **Form**: Translucent liquid.
- **Color**: Yellow / Gold

Odor: Solvent.

Odor threshold: Not available.

pH: Not available.

Melting point/freezing point: Not available.

Initial boiling point and boiling range: 151 °F (66.11 °C)

Flash point: 14.0 - 23.0 °F (-10.0 - -5.0 °C)

Evaporation rate: 5.5 - 8

Flammability (solid, gas): Not available.

Upper/lower flammability or explosive limits

- **Flammability limit - lower (%)**: 1.8
- **Flammability limit - upper (%)**: 11.8
- **Explosive limit - lower (%)**: Not available.
- **Explosive limit - upper (%)**: Not available.

Vapor pressure: 145 mm Hg @ 20 C

Vapor density: 2.5

Relative density: 0.94 +/- 0.02

Solubility(ies)

- **Solubility (water)**: Negligible

Partition coefficient (n-octanol/water): Not available.

Auto-ignition temperature: Not available.

Decomposition temperature	Not available.
Viscosity	500 - 1500 cP
Other information	
Bulk density	7.8 lb/gal
VOC (Weight %)	470 g/l SQACMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 23310 LBS, Acetone RQ = 50000 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 27-May-2015

Revision date -

Version # 01

HMIS® ratings Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

OTG 30755 59-30927
10 PAGES

SAFETY DATA SHEET

1. Identification

Product identifier **Oatey Purple Primer- NSF Listed for PVC and CPVC**

Other means of identification

Product code 1402E

Synonyms Part Numbers: 30755(TV), 30756(TV), 30757(TV), 30758, 30759, 30927

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Acetone	67-64-1	25-40
Cyclohexanone	108-94-1	25-40
Furan, Tetrahydro-	109-99-9	15-30
Methyl ethyl ketone	78-93-3	15-30

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3 50 ppm
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3 200 ppm
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3 200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
	TWA	500 ppm
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm
	TWA	20 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
	TWA	50 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1) — Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1) — Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1) — Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1) — Can be absorbed through the skin.

Furan, Tetrahydro- (CAS 109-99-9) — Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1) — Can be absorbed through the skin.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Translucent liquid.
Color	Purple
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.84 +/- 0.02 @20°C
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Bulk density	7 lb/gal
VOC (Weight %)	505 g/l SQACMD Method 24

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

Ingestion May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1993

UN proper shipping name Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 26274 LBS, Acetone RQ = 13130 LBS)

Transport hazard class(es)

Class 3

Subsidiary risk -

Label(s) 3

Packing group II

Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
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Acetone (CAS 67-64-1)
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US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	27-May-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0

NFPA ratings

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

DTG (30891)
10 pgs

SAFETY DATA SHEET

1. Identification

Product identifier	**Rain-R Shine Blue PVC Cement**
Other means of identification	
Product code	1104E
Synonyms	Part Numbers: 30890, 30891, 30893, 30894, 30895, 30896, 31954, 31955, 31956, 31957
Recommended use	Joining PVC Pipes
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	Oatey Co.
Address	4700 West 160th St. Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	40-70
Polyvinyl chloride	9002-86-2	10-20
Acetone	67-64-1	5-15
Cyclohexanone	108-94-1	5-15
Methyl ethyl ketone	78-93-3	5-15
Silica, amorphous, fumed	112945-52-5	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3 50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3 200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3 200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3 15 mg/m3	Respirable fraction. Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	0.8 mg/m3
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	6 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1)	Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

Appropriate engineering controls	Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Face shield is recommended. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Translucent liquid.
Color	Clear.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.92 +/- 0.02

Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1200 - 2500 cP
Viscosity temperature	77 °F (25 °C)
Other information	
Bulk density	7.7 lb/gal
VOC (Weight %)	443 g/l SQACMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours

Components	Species	Test Results
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 34014 LBS, Acetone RQ = 34247 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer
	Central nervous system
	Liver
	Blood
	Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes
	Delayed Hazard - No
	Fire Hazard - Yes
	Pressure Hazard - No
	Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)	Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

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Methyl ethyl ketone (CAS 78-93-3)	35 %WV

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US state regulations

US. Massachusetts RTK - Substance List

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Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-27-2015

Revision date -

Version # 01

HMIS® ratings Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

OTG 30926

10 pgs

SAFETY DATA SHEET

1. Identification

Product identifier	**Transition Cement**
Other means of identification	
Product code	1110E
Synonyms	Part Numbers: 30900, 30925, 30926, 32220, 32221
Recommended use	Joining PVC Pipe or Fittings to ABS Pipe or Fittings
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name	Oatey Co.
Address	4700 West 160th St. Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	30-50
Acetone	67-64-1	10-25
Methyl ethyl ketone	78-93-3	10-25
Polyvinyl chloride	9002-86-2	12-20
Cyclohexanone	108-94-1	5-15
Silica, amorphous, fumed	112945-52-5	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3	
		50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3	
		200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	0.8 mg/m3
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	6 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1)	Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)	Can be absorbed through the skin.

Appropriate engineering controls: Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection: Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection: Wear appropriate chemical resistant gloves.

Other: Wear appropriate chemical resistant clothing.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations: When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Translucent liquid.
Color	Green.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	-4.0 °F (-20.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.93 +/- 0.02

Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1000 - 2100 cP
Other information	
Bulk density	7.8 lb/gal
VOC (Weight %)	398 g/l SCAQMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours

Components	Species	Test Results
Oral		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 27933 LBS, Acetone RQ = 34247 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer Central nervous system Liver Blood Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)	Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-27-2015

Revision date -

Version # 01

HMIS® ratings Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

OTG 32161
9 pgs

SAFETY DATA SHEET

1. Identification

Product identifier	**Oatey Blue Lava Hot PVC Cement**
Other means of identification	
Product code	1114E
Synonyms	Part Numbers: 32160, 32161, 32162, 32163, 32164
Recommended use	Joining PVC Pipes
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name	Oatey Co.
Address	4700 West 160th St. Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	40-80
Acetone	67-64-1	10-20
Polyvinyl chloride	9002-86-2	10-20
Methyl ethyl ketone	78-93-3	5-15
Silica, amorphous, fumed	112945-52-5	1-4

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3 200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3 200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3 15 mg/m3	Respirable fraction. Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	0.8 mg/m3
		20 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm
Silica, amorphous, fumed (CAS 112945-52-5)	TWA	6 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

Furan, Tetrahydro- (CAS 109-99-9) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Translucent liquid.
Color	Blue.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.92 +/- 0.02
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1200 - 2500 cP
Viscosity temperature	77 °F (25 °C)
Other information	
Bulk density	7.7 lb/gal
VOC (Weight %)	454 g/l SQACMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.
Silica, amorphous, fumed (CAS 112945-52-5)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 65963 LBS, Acetone RQ = 34771 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II

Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer
	Central nervous system
	Liver
	Blood
	Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Silica, amorphous, fumed (CAS 112945-52-5)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	05-27-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0
NFPA ratings	

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

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6 pages

SAFETY DATA SHEET

1. Identification

Product identifier	**Oatey Tub-N-Tile Caulk - White**
Other means of identification	
Product code	
Synonyms	Part Numbers: 30240, 30241
Recommended use	Caulk and sealant for use around tubs, sinks and other plumbing applications.
Recommended restrictions	Do not use on applications where product will be submerged under water.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	Oatey Inc.
Address	4700 West 160th Street Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Not Classified.	
Health hazards	Acute Oral Toxicity	Cat 5
	Eye Irritation	Cat 2B
	Skin Irritation	Cat 3
OSHA defined hazards	Not Classified.	
Label elements		
Hazard symbol	None.	
Signal word	Warning	
Hazard statement	May be harmful if swallowed. Causes mild skin irritation. Causes eye irritation	
Precautionary statement		
Prevention	Wash Thoroughly after handling. Wear protective gloves and eye protection.	
Response	If skin irritation occurs: Get medical advice. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.	
Storage	Not applicable.	
Disposal	Not applicable.	
Hazard(s) not otherwise classified (HNOC)	Uncured product is irritating to eyes, skin and respiratory system.	

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Calcium Carbonate*	1317-65-3	30 - 50
Acrylic Emulsion	Mixture	30 - 50
Benzoate Ester	Proprietary	5 - 10
Titanium Dioxide*	13463-67-7	1 - 2
Petroleum Distillate	64742-48-9	1
Non Hazardous Ingredients	Mixture	< 5%

*Inhalation of particulates unlikely due to product's physical state.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Ingestion	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Skin or eye irritation.
Indication of immediate medical attention and special treatment needed.	Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
General information	Note to physician, treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	Use dry chemical, CO2, alcohol-resistant foam or water spray (fog).
Unsuitable extinguishing media	water jet
Specific hazards arising from the chemical	No specific fire or explosion hazard.
Special protective equipment and precautions for firefighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Fire fighting equipment/instructions	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Use water spray to keep fire-exposed containers cool. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Specific methods	None
General fire hazards	None

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Methods and materials for containment and cleaning up	Large Spills: Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal. Small Spills: Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

7. Handling and storage

Precautions for safe handling	Put on appropriate personal protective equipment (see section 8 of SDS). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Petroleum Distillate	TWA	5 mg/m3
Titanium Dioxide	TWA	10 mg/m3

US OSHA Permissible Exposure Limits

Components	Type	Value
Calcium Carbonate	TWA	5 mg/m3 respirable
Petroleum Distillate	TWA	5 mg/m3

Biological limit values

No Biological limits.

Appropriate engineering controls

No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin protection

Hand

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Thermal hazards

None.

General hygiene considerations

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Paste

Color White or Off-White.

Odor Mild Acrylic

Odor threshold Not available.

pH 7 - 9

Melting point/freezing point Not applicable.

Initial boiling point and boiling range Not determined

Flash point > 199 °F (> 93.3 °C)

Upper/lower flammability or explosive limits

Flammability limit – lower (%) Not available

Flammability limit – upper (%) Not available

Explosive limit - lower (%)	Not available
Explosive limit - upper (%)	Not available
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	1.4 - 1.5
Solubility(ies)	
Solubility (water)	Not available
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available
Viscosity	Not available
Other information	
VOC (Weight %)	0.8% or 11 g/L

10. Stability and reactivity

Reactivity	Stable under normal conditions.
Chemical stability	The product is stable.
Possibility of hazardous reaction	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Incompatible materials	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Eye contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.
Symptoms related to the physical, chemical and toxicological characteristics	No specific data.

Information on likely routes of exposure
Acute Toxicity

Components	Species	Results

Skin corrosion/irritation	Not determined.
Serious eye damage/eye irritation	Not determined.
Respiratory or skin sensitization	
Respiratory sensitization	Not considered a respiratory irritant
Skin sensitization	This product is not expected to cause skin irritation.
Germ cell mutagenicity	No specific data
Carcinogenicity	No known significant effects or critical hazards.
Reproductive toxicity	No known significant effects or critical hazards.
Specific target organ toxicity	
Single exposure	Not Classified.
Repeated exposure	Not Classified.
Aspiration Hazard	Contains Distillates (petroleum), hydrotreated – Which is a category 1 Aspiration Hazard. The likely hood of aspirating the product in this form is very low due to the high viscosity.
Chronic effects	Not Classified.
Further information	

12. Ecological information

Ecotoxicity

Product/ingredient name	Results	Species	Exposure
Petroleum Distillates			
	Acute LC50 2,900 µg/l Fresh water	Fish - Rainbow trout,Donaldson trout	96 h
	Acute LC50 2,200 µg/l Fresh water	Fish - Bluegill	96 h

Persistence and degradability	Not Available.
Bio accumulative potential	Not Available.
Mobility in soil	Not available.
Other adverse effects	No known significant effects of critical hazards.

13. Disposal considerations

Disposal instructions	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Local disposal regulations	Not Applicable
Hazardous waste code	Not Applicable

14. Transportation information

DOT	Not Regulated
UN number	
UN Proper Shipping Name	
Transportation Hazard classes	
Packing group	
IATA	Not Regulated
UN number	
UN Proper Shipping Name	
Transportation Hazard classes	
Packing group	
IMDG	Not Regulated
UN number	
UN Proper Shipping Name	
Transportation Hazard classes	
Packing group	
Environmental hazards	
Marine polluntant	

15. Regulatory information

U.S. Federal regulations	**TSCA 12(b) - Chemical export notification:** None required. **TSCA 5(a)2 - Final significant new use rules:** Not listed **TSCA 5(a)2 - Proposed significant new use rules:** Not listed **TSCA 5(e) - Substances consent order:** Not listed
SARA 311/312	

Classification	Not applicable

US state regulations

California Prop 65	This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Canada

WHMIS (Canada)	Class D-2A: Material causing other toxic effects (Very toxic).

International regulations

Country(s) or region	Inventory Name	On inventory list (yes/no)*
Canada	DSL/NDSL	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Not Determined
China	Inventory of Existing Chemical Substances in China (IECSC)	Not Determined
United States & Puerto Rico	Toxic Substances Control Act (TSCA 8b)	Yes

16. Other information, including date of preparation or last revision

Issue Date	12-May-2015
Revision Date	-
Version #	01
HMIS Rating	Health: 1 Flammability: 1 Physical Hazards: 0
Disclaimer	Oatey Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Cryotek
Of 35-281
6 pages

SAFETY DATA SHEET

1. Identification

Product identifier	**Hercules Cryoteck Solar System Antifreeze**
Other means of identification	
Product code	7382E
Synonyms	Part Numbers: 35280, 35292
Recommended use	Engineered Heat Transfer Fluid for solar systems
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	HCC Holdings, Inc. an Oatey Affiliate
Address	4700 West 160th Street Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	
Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Propylene glycol	57-55-6	55-65
Water	7732-18-5	45-55
NJTSR #31348300 5065P	N/A	1-5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact	Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid prolonged exposure. Use care in handling/storage.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
Propylene glycol (CAS 57-55-6)	TWA	10 mg/m3	Aerosol.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.

Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid.
Color	Orange or Green.
Odor	Odorless.
Odor threshold	Not available.
pH	7 - 8.5
Melting point/freezing point	Not available.
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	> 212.0 °F (> 100.0 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.05
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	8 cP
Other information	
VOC (Weight %)	60.6 % by weight

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Propylene glycol (CAS 57-55-6)		
Acute		
Oral		
LD50	Rat	30 g/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Propylene glycol (CAS 57-55-6)			
Aquatic			
Crustacea	LC50	Ceriodaphnia dubia	18340 mg/l, 48 hours
Fish	LC50	Pimephales promelas	46500 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Propylene glycol (CAS 57-55-6) -0.92

Mobility in soil No data available.

Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

15. Regulatory information

US federal regulations	This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)	Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Propylene glycol (CAS 57-55-6)

US. Pennsylvania Worker and Community Right-to-Know Law

Propylene glycol (CAS 57-55-6)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

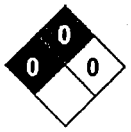
Issue date 23-April-2015

Revision date -

Version # 01

HMIS® ratings Health: 0
Flammability: 0
Physical hazard: 0

NFPA ratings



Disclaimer HCC Holdings Inc. an Oatey Affiliate cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

OT 30203 -5 6 pages

SAFETY DATA SHEET

1. Identification

Product identifier	**Oatey Dark Cutting Oil**
Other means of identification	
Product code	
Synonyms	Part Numbers: 30203, 30204, 30205
Recommended use	Cutting oil for high speed thread cutting machines.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	Oatey Inc.
Address	4700 West 160th Street Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Not Classified.
Health hazards	Not Classified
OSHA defined hazards	Not Classified.
Label elements	
Hazard symbol	None.
Signal word	None
Hazard statement	This product does not require any hazard statements.
Precautionary statement	
Prevention	This product does not require any precautionary statements.
Response	This product does not require any precautionary statements.
Storage	Not applicable.
Disposal	Not applicable.
Hazard(s) not otherwise classified (HNOC)	Used Oil may contain harmful impurities.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Petroleum Hydrocarbon Mixture	Mixture	>95

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Ingestion	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical

	personnel. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Ingestion may result in nausea, vomiting, and or diarrhea.
Indication of immediate medical attention and special treatment needed.	Immediate medical attention is not required.
General information	Note to physician, treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	Do not use water in a jet.
Specific hazards arising from the chemical	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases, oxides of sulfur and phosphorous (smoke). Carbon monoxide.
Special protective equipment and precautions for firefighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Fire fighting equipment/instructions	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Use water spray to keep fire-exposed containers cool. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Specific methods	None
General fire hazards	None

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Methods and materials for containment and cleaning up	Large Spills: Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal. Small Spills: Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

7. Handling and storage

Precautions for safe handling	Use local exhaust ventilation if there is risk of inhalation of vapors, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials to prevent fires. Put on appropriate personal protective equipment (see section 8 of SDS). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Oil Mist, Mineral	TLV or PEL	5 mg/m3

US OSHA Permissible Exposure Limits

Components	Type	Value

Biological limit values Data Not available.

Appropriate engineering controls No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin protection

Hand Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Thermal hazards None.

General hygiene considerations Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and chemical properties

Appearance

Physical state Liquid

Form Liquid

Color Dark, brown

Odor Slight hydrocarbon

Odor threshold Not available.

pH Not applicable

Melting point/freezing point No data available.

Initial boiling point and boiling range Not determined

Flash point > 340 °F (> 171°C)

Upper/lower flammability or explosive limits

Flammability limit – lower (%) Not available

Flammability limit – upper (%) Not available

Explosive limit - lower (%) Not available

Explosive limit - upper (%) Not available

Vapor pressure Not applicable

Vapor density Not applicable

Relative density 0.92

Solubility(ies)

Solubility (water) Negligible

Partition coefficient (n-octanol/water) >6 based on similar products

Auto-ignition temperature Not applicable

Decomposition temperature	Not available
Viscosity, kinematic	182 SUS at 100 F (typical)
Other information	
VOC (Weight %)	< 1% by weight, < 10 g/L

10. Stability and reactivity

Reactivity	The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph..
Chemical stability	The product is stable.
Possibility of hazardous reaction	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Extreme temperature and direct sunlight.
Incompatible materials	Strong Oxidizing Agents.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Mist from processing.
Skin contact	Skin contact.
Eye contact	Eye contact.
Ingestion	No known significant effects or critical hazards.
Symptoms related to the physical, chemical and toxicological characteristics	No specific data.

Information on likely routes of exposure

Acute Toxicity

Components	Species	Results

Skin corrosion/irritation	May cause skin irritation after prolonged exposure. Prolonged exposure or repeated exposure without proper cleaning can clog pores of the skin.
Serious eye damage/eye irritation	Expected to be slightly irritating.
Respiratory or skin sensitization	
Respiratory sensitization	Inhalation of vapors or mists may cause irritation to the respiratory system.
Skin sensitization	This product is not expected to cause skin irritation.
Germ cell mutagenicity	Not considered a mutagenic hazard
Carcinogenicity	No component of this product is identified as a probable, possible, or confirmed carcinogen by IARC, NTP, Monographs, or OSHA.
Reproductive toxicity	No known significant effects or critical hazards.
Specific target organ toxicity	
Single exposure	Not expected to be a hazard.
Repeated exposure	Not expected to be a hazard.
Aspiration Hazard	Contains Distillates (petroleum), hydrotreated – Which is a category 1 Aspiration Hazard. The likely hood of aspirating the product in this form is very low due to the high viscosity.
Chronic effects	Not Classified.
Further information	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and may present risks to health and the environment on disposal. Used oil should be handled with caution and skin contact should be avoided when possible.

12. Ecological information

Ecotoxicity

Product/ingredient name	Results	Species	Exposure
Petroleum Distillates			
	Acute LC50 2,900 µg/l Fresh water	Fish - Rainbow trout,Donaldson trout	96 h

	Acute LC50 2,200 µg/l Fresh water	Fish - Bluegill	96 h

Persistence and degradability	Not Available.
Bio accumulative potential	Not Available.
Mobility in soil	Liquid under most conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
Other adverse effects	No known significant effects of critical hazards.

13. Disposal considerations

Disposal instructions	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Local disposal regulations	Not Applicable
Hazardous waste code	Not Applicable

14. Transportation information

DOT	Not Regulated
UN number	
UN Proper Shipping Name	
Transportation Hazard classes	
Packing group	
IATA	Not Regulated
UN number	
UN Proper Shipping Name	
Transportation Hazard classes	
Packing group	
IMDG	Not Regulated
UN number	
UN Proper Shipping Name	
Transportation Hazard classes	
Packing group	
Environmental hazards	
Marine polluntant	

15. Regulatory information

U.S. Federal regulations	**TSCA 12(b) - Chemical export notification:** None required. **TSCA 5(a)2 - Final significant new use rules:** Not listed **TSCA 5(a)2 - Proposed significant new use rules:** Not listed **TSCA 5(e) - Substances consent order:** Not listed
SARA 311/312	
Classification	Not applicable
US state regulations	
California Prop 65	This product does not contain a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

16. Other information, including date of preparation or last revision

Issue Date	12-May-2015
Revision Date	-
Version #	01
HMIS Rating	Health: 1 Flammability: 1 Physical Hazards: 0
Disclaimer	Oatey Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

OTG 3092
8 pages

SAFETY DATA SHEET

1. Identification

Product identifier Oatey ABS Special Milky Clear

Other means of identification

SDS number 1300E

Synonyms Part Numbers: 30922, 30923, 30924, 30929

Recommended use Joining ABS Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Wear protective gloves/eye protection/face protection.

Response Do NOT induce vomiting. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.

Storage Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Methyl ethyl ketone	78-93-3	30-60
Acrylonitrile-butadiene-styrene copolymers	9003-56-9	15-40
Acetone	67-64-1	10-30

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact
Take off immediately all contaminated clothing. Wash off with soap and water.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion
Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.

Most important symptoms/effects, acute and delayed
Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information
Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media
Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3
		1000 ppm
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3
		200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
	TWA	500 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke.

9. Physical and chemical properties

Appearance	Translucent.
Physical state	Liquid.
Form	Liquid.
Color	Milky.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	14.0 - 23.0 °F (-10.0 - -5.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.87 - 0.91
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	500 - 1500 cP

Other information

Density	7.40 lb/gal
VOC (Weight %)	310 g/l SQACMD Method 304

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful. May cause irritation to the respiratory system.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Respiratory tract irritation. Narcotic effects.

Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	May be fatal if swallowed and enters airways.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Methyl ethyl ketone (CAS 78-93-3)	0.29

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1133
UN proper shipping name	Adhesives
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	T11, TP1, TP8, TP27
Packaging exceptions	150
Packaging non bulk	201
Packaging bulk	243

IATA

UN number	UN1133
UN proper shipping name	Adhesives
Transport hazard class(es)	
Class	3
Subsidiary risk	-

Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1133
UN proper shipping name	ADHESIVES
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Methyl ethyl ketone (CAS 78-93-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	30-July-2014
Revision date	10-December-2014
Version #	02
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available.

PD 35754 9pgs

BERRY PLASTICS CORPORATION AND SUBSIDIARIES
LEADERSHIP BY DESIGN

SAFETY DATA SHEET
Nashua 357 Spray Adhesive

1. IDENTIFICATION

Product Name	Nashua 357 Spray Adhesive
Recommended use of the chemical and restrictions on use	
Identified uses	Spray Adhesive
Company Identification	Berry Plastics Corporation 25 Forge Parkway Franklin, MA 02038
Customer Information Number	(800) 248-7659 (Monday – Friday 8:00 am to 5:00 pm) msdstechnical@berryplastics.com
Emergency Telephone Number	
Chemtrec Number	Within USA and Canada: 1-800-424-9300 CCN22955 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)
Issue Date	May 6, 2014
Supersedes Date	May 29, 2013

Safety Data Sheet prepared In accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200)and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification
Flammable Aerosols - Category 1
Serious eye damage/eye irritation - Category 2A
Skin corrosion/irritation - Category 2
Specific Target Organ Toxicity Repeat Exposure - Category 2
Specific Target Organ Toxicity Single Exposure - Category 3
Toxic to Reproduction - Category 2
Aspiration hazard - Category 1

Label Elements
Hazard Symbols

Signal Word: Danger

Hazard Statements
Extremely flammable aerosol.
Causes serious eye irritation.
Causes skin irritation.
May cause drowsiness or dizziness
May cause damage to organs (nervous system) through prolonged or repeated exposure (Inhalation).
May be fatal if swallowed and enters airways.

2. HAZARD IDENTIFICATION

Precautionary Statements

Prevention

Pressurized container: Do not pierce or burn, even after use.
Do not spray on an open flame or other ignition source.
Keep away from heat/sparks/open flame/hot surfaces. - No smoking.
Wear eye protection/face protection/protective gloves/protective clothing.
Do not handle until all safety precautions have been read and understood.
Obtain special instructions before use.
Avoid breathing fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.

Response

If swallowed: Immediately call a poison center/doctor/physician. Do not induce vomiting.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, get medical advice/attention.
Take off contaminated clothing and wash before re-use.
If exposed or concerned: Get medical attention/advice.
If on skin: Wash with plenty of soap and water.
If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison center or doctor/physician if you feel unwell.

Storage

Protect from sunlight.
Store in a well-ventilated place. Keep container tightly closed.
Do not expose to temperatures exceeding 50 °C/122 °F.
Store locked up.

Disposal

Dispose of contents/container in accordance with local regulation.

Other Hazards

None identified.

2. HAZARD IDENTIFICATION

Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	55 - 65 %
Acute dermal toxicity	55 - 65 %
Acute inhalation toxicity	70 - 80%
Acute aquatic toxicity	70 - 80%

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:
This product is a mixture.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Concentration
Acetone	67-64-1	20 - 30%
n-Hexane	110-54-3	10 - 20%
Dimethyl Ether	115-10-6	10 - 20%
Propane	74-98-6	10 - 20%
2-methylpentane	107-83-5	1 - 10%
3-methylpentane	96-14-0	1 - 10%

4. FIRST- AID MEASURES

Description of necessary first-aid measures

Eyes

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Immediately flood the skin with large quantities of water for at least 15 minutes, preferably under a shower. Remove contaminated clothing and continue washing. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention if blistering occurs or redness persists.

Ingestion

Do not induce vomiting. Have victim drink 1-3 glasses of water to dilute stomach contents. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Most important symptoms/effects, acute and delayed

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

Notes to Physicians

Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

Use foam, dry chemical or carbon dioxide. Be aware of the possibility of re-ignition. Keep containers and surroundings cool with water spray.

Specific hazards arising from the chemical

Vapors can travel a considerable distance to a source of ignition and flashback. Flashback can occur if air temperature exceeds flash point. Be aware of possibility of re-ignition. For aerosol products – exposure to temperature over 130°F may cause containers to burst and release highly flammable gas.

Special Protective Actions for Fire-Fighters

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing. Eliminate all sources of ignition. Use non-sparking scoops for flammable materials.

Environmental Precautions
Prevent the material from entering drains or watercourses. Notify authorities if spill has entered watercourse or sewer or has contaminated soil or vegetation. Dispose in accordance with federal, state and local regulations.

Methods and materials for containment and cleaning up
Contain and absorb using earth, sand or other insert material. Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Keep from reach of children. Do not puncture, incinerate or place aerosol product containers in compactors. Use in well ventilated area. Use local exhaust ventilation. Avoid inhaling vapor. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use. Do not flame cut, braze or use welding torch on container. Intentional misuse by deliberately concentrating or inhaling the vapors from this product may be harmful or fatal.

Conditions for safe storage
Store away from sources of heat or ignition. Storage area should be: cool - dry - well ventilated - away from incompatible materials - out of direct sunlight - away from sources of ignition (heat, sparks, flames, and pilot lights) Do not store above 120°F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Hexane
ACGIH: TLV 50ppm 8h TWA. (skin)
OSHA: PEL 500ppm (1800 mg/m^3) 8h TWA.
Can be absorbed through skin.
Acetone
ACGIH: TLV 500 ppm 8h TWA.
ACGIH (STEL): 750 ppm 15min.
OSHA: PEL 1000 ppm (2400 mg/m^3) 8h TWA.
Propane
ACGIH: See ACGIH Appendix F: Minimal Oxygen Content.
OSHA: PEL 1000ppm (1800 mg/m^3) 8h TWA.
2-Methylpentane as Hexane, Isomers other than n-Hexane
ACGIH: TLV 500 ppm 8h TWA.
ACGIH (STEL): 1000 ppm 15min
3-Methylpentane as Hexane, Isomers other than n-Hexane
ACGIH: TLV 500 ppm 8h TWA.
ACGIH (STEL): 1000 ppm 15min

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering controls
Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Individual protection measures
Respiratory Protection
Wear respiratory protection if there is a risk of exposure to high vapor concentrations, aerosols or if applied to hot surfaces. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
Skin Protection
Butyl gloves are recommended.
Eye/Face Protection
Chemical goggles or safety glasses with side shields.
Body Protection
If there is danger of splashing, wear: overall or apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical State	Aerosol
Color	No data available
Odor	No data available
Odor Threshold	No data available
pH	Not applicable
Specific Gravity	0.703 estimated
Boiling Range/Point (°C/F)	Not determined
Melting Point (°C/F)	Not determined
Flash Point (PMCC) (°C/F)	-104.44 °C/-156°F Propellant estimated
Vapor Pressure	Not determined
Evaporation Rate	Faster than butyl acetate
Solubility in Water	No data available
Vapor Density (Air = 1)	Heavier than air
VOC (g/l)	No data available
VOC (%)	No data available
Partition coefficient (n-octanol/water)	Not applicable
Viscosity	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	No data available
Lower explosive limit	No data available
Flammability (solid, gas)	No data available

10. STABILITY AND REACTIVITY

Reactivity
Data is not available

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Heat, sparks, flames - contact with incompatible materials

Incompatible Materials
Strong oxidizers

Hazardous Decomposition Products
Oxides of carbon - aldehydes

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Acetone
Oral LD50 (rat) 5800 mg/kg
Dermal LD50 (rabbit) 20,000 mg/kg
Inhalation LC50 (rat) 76 mg/l 4hr
n-Hexane
Oral LD50 (rat) >16,000 mg/kg
Dermal LD50 (rabbit) >2000 mg/kg

Specific Target Organ Toxicity (STOT) – single exposure
Inhalation of this product may cause narcotic effects such as drowsiness or dizziness (Hexane, Acetone, 2-methylpentane, 3-methylpentane).

Specific Target Organ Toxicity (STOT) – repeat exposure
Hexane: May cause adverse effects to the nervous system through repeated inhalation exposure..

Serious Eye damage/Irritation
Acetone: Undiluted acetone was severely irritating to rabbit eyes, mild irritation was observed for acetone concentrations of 30% and lower.
Hexane: Not irritating to eyes in rabbit studies.

Skin Corrosion/Irritation
Acetone: Repeated exposure may cause skin dryness and cracking.
Hexane: Irritating to skin in animal studies.
2-methylpentane: May cause skin irritation.
3-methylpentane: May cause skin irritation.

Respiratory or Skin Sensitization
Acetone: No indications of a sensitizing potential of acetone were found in a guinea pig maximization test.
Hexane: Not sensitizing to skin in Mouse local lymph node assay (LLNA)

11. TOXICOLOGICAL INFORMATION

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity
Available data indicates this product is not expected to be mutagenic.

Reproductive Toxicity
Hexane: In animal studies adverse reproductive and developmental effects were seen.

Aspiration Hazard
Available data indicates this product may be an aspiration hazard. May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Hexane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)
2-methylpentane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)
3-methylpentane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable local and national regulations. Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near to the container. Use non-sparking tools. Do not incinerate closed containers. Empty containers may contain hazardous residues. Dispose of containers with care.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Consumer Commodity, ORM-D (US ground shipment only)
UN Proper Shipping Name	Aerosols
UN Class	(2.1)
UN Number	UN1950
UN Packaging Group	None
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Environmental Hazards	Not a marine pollutant

15. REGULATORY INFORMATION

United States TSCA Inventory
All ingredients have been verified for inclusion or are exempt from listing on the EPA Toxic Substance Control Act Chemical Substance Inventory.

Canada DSL and NDSL Inventory
All ingredients in this product have been verified for inclusion or are exempt from listing on the Domestic Substance List (DSL).

WHMIS Classification
B5. D.2 A
This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

California Proposition 65
This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

SARA Title III Sect. 311/312 Categorization
Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard, Fire Hazard, Sudden Release of Pressure

SARA Title III Sect. 313
This product contains a chemical that is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: Hexane (110-54-3)

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Health - 2
NFPA Code for Flammability - 4
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – None

HMIS Ratings
HMIS Code for Health - 2*
HMIS Code for Flammability - 4
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
ECHA: European Chemicals Agency
EC50: Effect Concentration 50%
IARC: International Agency for Research on Cancer
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit

16. OTHER INFORMATION

TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

The information and recommendations presented in this SDS are based on sources believed to be accurate. Berry Plastics Corporation assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the **material** for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use **or disposal** of the material is in accordance with applicable Federal, State, and local laws and regulations.

RF 6 pages

SAFETY DATA SHEET

RECTORSEEK™ MID-TEMP

Normal temperature leak locator

Section 1 – Product and Company Information

Product Name
RectorSeek™ Mid-Temp

Product Codes
60554, 60434, 60273, 60158, 60111

Chemical Family
Organic/Inorganic

Use
Leak locator

Manufacturer's Name
The RectorSeal Corporation
2601 Spenwick Drive
Houston, Texas 77055 USA

Date of Validation
January 23, 2015

Date of Preparation
October 4, 2012

HMIS Codes

Health	1
Flammability	0
Reactivity	0
PPI	B

Emergency Telephone No.
Chemtrec 24 Hours
(800)-424-9300 USA
(703)-527-3887 International

Technical Service Telephone No.
(800)-231-3345 or (713)-263-8001

Section 2 – Hazards Identification

GHS CLASSIFICATION

Physical Hazards:
None

Health Hazards

Acute Toxicity:
Oral: Not Classified
Dermal: Not Classified
Inhalation: Not Classified
Skin Corrosion/Irritation: Not Classified
Serious Eye Damage/Eye Irritation: Not Classified
Respiratory or Skin Sensitization: Not Classified
Germ Cell Mutagenicity: Not Classified
Carcinogenicity: Not Classified
Reproductive Toxicology: Not Classified

Target Organ Systemic Toxicity - Single Exposure: Not Classified
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified
Acute aquatic toxicity: Not Classified
Chronic aquatic toxicity: Not Classified
Bioaccumulation potential: Not Classified
Rapid degradability: Not Classified

GHS Label elements, including precautionary statements

Pictogram: None

Signal Word: None

Hazard Statements: None

Precautionary Statements:
P102 - Keep out of reach of children.
P264 - Wash hands thoroughly after handling.

Summary Of Acute Hazards

None known.

Route Of Exposure, Signs And Symptoms

INHALATION
None.

EYE CONTACT
May cause slight eye irritation.

SKIN CONTACT
None.

INGESTION
May cause nausea and vomiting. Not expected to produce toxic effects unless large amounts are ingested.

SUMMARY OF CHRONIC HAZARDS
None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None known.

Section 3 – Composition/Information on Ingredients

Ingredient:	Nonylphenol Polyethylene Glycol Ether
Percentage By Weight:	1-5
CAS Number:	127087-87-0
EC#:	Unlisted

Section 4 – First Aid Measures

If inhaled:	N/A
If on skin:	Wash with water.
If in eyes:	Flush eyes with large amounts of water. Get medical attention if irritation persists.
If swallowed:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Section 5 – Fire Fighting Measures

Extinguishing Media
Non-flammable. Use agents appropriate for surrounding fires.

Special Fire Fighting Procedures: Wear self-contained full face piece breathing apparatus and other protective clothing.

Unusual Fire And Explosion Hazards: None.

Section 6 – Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Use absorbent materials to prevent footing hazard and to contain.

Section 7 – Handling and Storage

Precautions To Be Taken In Handling And Storing: Keep container closed and upright when not in use.

Other Precautions: Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues; treat as if full and observe all products precautions. Do not reuse empty containers.

KEEP OUT OF REACH OF CHILDREN.

Section 8 – Exposure Controls/Personal Protection

Ingredient	Units
Nonylphenol Polyethylene Glycol Ether	
ACGIH TLV:	N/D
OSHA PEL:	N/D

Respiratory Protection (Specify Type): None required.

Ventilation – Local Exhaust: Acceptable

Special: N/A

Mechanical (General): Acceptable

Other: N/A

Protective Gloves: Wear rubber gloves.

Eye Protection: Safety glasses (ANSI Z-87.1 or equivalent)

Other Protective Clothing Or Equipment: N/A

Work/Hygienic Practices: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

Section 9 – Physical and Chemical Properties

Boiling point:	212°F (100°C) @ 760 mmHg
Specific gravity (H20 = 1):	0.99
Vapor pressure (mmHg):	< 1 @ 68°F (20°C)
Melting point:	N/A
Vapor Density (Air = 1):	> 1
Evaporation rate (Ethyl Acetate = 1):	< 1
Appearance/Odor:	Blue liquid/Mild odor
Solubility in water:	Soluble
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	< 0% or < (0 g/L)
Flash point:	None
Lower explosion limit:	N/D
Upper explosion limit:	N/D

Section 10 – Stability and Reactivity

Stability: Stable

Conditions To Avoid: None.

Incompatibility (Materials To Avoid): None.

Hazardous Decomposition Products: CO, CO_2, and fragmented hydrocarbons.

Hazardous Polymerization: Will not occur.

Section 11 – Toxicology Information

Chronic Health Hazards

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

Toxicology Data

Ingredient Name

Nonylphenol Polyethylene Glycol Ether

Oral-Rat LD50:	N/D
Inhalation-Rat LC50:	N/D

Section 12 – Ecological Information

Ecological Data

Ingredient Name:	**Nonylphenol Polyethylene Glycol Ether**
Food Chain Concentration Potential	N/D
Waterfowl Toxicity	N/D
BOD	N/D
Aquatic Toxicity	N/D

Section 13 – Disposal Considerations

Waste Classification: Non-regulated liquid waste.

Disposal Method: Dispose of in accordance with local, state and federal regulations.

Section 14 – Transportation Information

DOT:	Non-regulated
Ocean (IMDG):	Non-regulated
Air (IATA):	Non-regulated
WHMIS (Canada):	Non-regulated

Section 15 – Regulatory Information

Regulatory Data

Ingredient Name:	**Nonylphenol Polyethylene Glycol Ether**
SARA 313	No
TSCA Inventory	Yes
CERCLA RQ	N/A
RCRA Code	N/A

Section 16 – Other Information

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made.

Consult RectorSeal for further information: (713) 263-8001

KIT 8 BASES

RECTORSEAL

SAFETY DATA SHEET

C-FLUX®

High-quality soft soldering flux

Section 1 – Product and Company Information

Product Name
C-Flux®

Product Codes
74025, 74026, 74027, 74028, 74029

Chemical Family
Organic/Inorganic

Use
Soldering flux

Manufacturer's Name
The RectorSeal Corporation
2601 Spenwick Drive
Houston, Texas 77055 USA

Date of Validation
January 23, 2015

Date of Preparation
August 1, 2012

HMIS Codes

Health	2
Flammability	1
Reactivity	0
PPI	B

Emergency Telephone No.
Chemtrec 24 Hours
(800)-424-9300 USA
(703)-527-3887 International

Technical Service Telephone No.
(800)-231-3345 or (713)-263-8001

Section 2 – Hazards Identification

EMERGENCY OVERVIEW

OSHA Hazards
Irritant

GHS CLASSIFICATION

Physical Hazards
None

Health Hazards

Acute Toxicity:
Oral: Not Classified
Dermal: Not Classified
Inhalation: Not Classified
Skin Corrosion/Irritation: Not Classified
Serious Eye Damage/Eye Irritation: Not Classified
Respiratory or Skin Sensitization: Not Classified
Germ Cell Mutagenicity: Not Classified
Carcinogenicity: Not Classified

Reproductive Toxicology: Not Classified
Target Organ Systemic Toxicity - Single Exposure: Not Classified
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified
Acute aquatic toxicity: Not Classified
Chronic aquatic toxicity: Not Classified
Bioaccumulation potential: Not Classified
Rapid degradability: Not Classified

GHS Label elements, including precautionary statements

GHS07: Exclamation Mark/Irritant
Signal Word: **Warning**

Hazard Statements:
H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.

Precautionary Statements:
P102 - Keep out of reach of children.
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash hands thoroughly after handling.
P281 Use personal protective equipment as required.

Summary Of Acute Hazards

Irritation to respiratory system from fumes evolved during soldering. Eye contact may cause intense irritation and injury.

Route Of Exposure, Signs And Symptoms

INHALATION
Irritation to respiratory system from fumes evolved during soldering.

EYE CONTACT
Contact may cause intense irritation and injury.

SKIN CONTACT
May cause skin irritation.

INGESTION
Nausea, vomiting, irritation to digestive system.

SUMMARY OF CHRONIC HAZARDS

Short term effects to liver and kidneys can occur. Chemical irritation from continued skin contact can occur. Continuous industrial use in small unventilated areas may result in sufficient inhalation of solder and flux fumes to cause lung damage and irritation of respiratory tract.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Individuals with pre-existing or chronic diseases of the eyes, skin, respiratory system, cardiovascular system, gastrointestinal system, liver, or kidneys may have increased susceptibility to excessive exposure.

Section 3 – Composition/Information on Ingredients

Ingredient:	Zinc Chloride
Percentage By Weight:	< 20
CAS#:	7646-85-7
EC#:	231-592-0
Ingredient:	Ammonium Chloride
Percentage By Weight:	< 1
CAS Number:	12125-02-9
EC#:	235-186-4
Ingredient:	Zinc Oxide
Percentage By Weight:	< 10
CAS Number:	1314-13-2
EC#:	215-222-5
Ingredient:	Tin
Percentage By Weight:	—
CAS Number:	7440-31-5
EC#:	231-141-8
Ingredient:	Antimony
Percentage By Weight:	< 1
CAS Number:	7440-36-0
EC#:	231-146-5

Section 4 – First Aid Measures

If inhaled:	If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
If on skin:	Immediately wash with soap and water. Remove and wash any contaminated clothing.
If in eyes:	Immediately flush with large amounts of water for at least 15 minutes. Get prompt medical attention if irritation persists.
If swallowed:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Section 5 – Fire Fighting Measures

Extinguishing Media
Foam, dry chemical, carbon dioxide or water fog.

Special Fire Fighting Procedures: Wear self-contained full face piece breathing apparatus and other protective clothing. Hazardous decomposition products possible (see Section 10). May release ZnO and HCl fumes.

Unusual Fire And Explosion Hazards: Heat may build up pressure and rupture closed containers.

Section 6 – Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

Section 7 – Handling and Storage

Precautions To Be Taken In Handling And Storing: Keep container closed and upright when not in use. Store flux at ambient conditions. Wash thoroughly after handling to remove all residue.

Other Precautions: Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues; treat as if full and observe all products precautions. Do not reuse empty containers.

Section 8 – Exposure Controls/Personal Protection

Ingredient	Units
Zinc Chloride	
ACGIH TLV:	1 mg/m3
OSHA PEL:	1 mg/m3

Ammonium Chloride

ACGIH TLV:	10 mg/m3
OSHA PEL:	10 mg/m3

Zinc Oxide

ACGIH TLV:	5 mg/m3
OSHA PEL:	5 mg/m3

Tin

ACGIH TLV:	5 mg/m3
OSHA PEL:	5 mg/m3

Antimony

ACGIH TLV:	0.5 mg/m3
OSHA PEL:	0.5 mg/m3

Respiratory Protection (Specify Type): In confined poorly ventilated areas, use NIOSH/MSHA approved air purifying or supplied air purifying or supplied air respirators during soldering operations until fumes have dissipated.

Ventilation – Local Exhaust: Acceptable

Special: N/A

Mechanical (General): Acceptable.

Other: N/A

Protective Gloves: Wear rubber gloves.

Eye Protection: Safety glasses (ANSI Z-87.1 or equivalent)

Other Protective Clothing Or Equipment: Coveralls recommended.

Work/Hygienic Practices: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

Section 9 – Physical and Chemical Properties

Boiling point:	N/D
Specific gravity (H20 = 1):	1.59
Vapor pressure (mmHg):	N/D
Melting point:	N/D
Vapor Density (Air = 1):	N/A
Evaporation rate (Ethyl Acetate = 1):	N/A
Appearance/Odor:	Gray paste/No odor
Solubility in water:	Insoluble
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	0% or (0 g/L)
Flash point:	> 230°F (110°C) SETA CC
Lower explosion limit:	N/D
Upper explosion limit:	N/D

Section 10 – Stability and Reactivity

Stability: Stable

Conditions To Avoid: None

Incompatibility (Materials To Avoid): None known

Hazardous Decomposition Products: Toxic fumes of zinc, chlorine, and HCL may be evolved during soldering.

Hazardous Polymerization: Will not occur.

Section 11 – Toxicology Information

Chronic Health Hazards

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

Toxicology Data

Ingredient Name

Zinc Chloride	
Oral-Rat LD50:	350 mg/kg
Inhalation-Rat LCLo:	1960 mg/m3/10M
Ammonium Chloride	
Oral-Rat LD50:	1650 mg/kg
Inhalation-Rat LC50:	N/D
Zinc Oxide	
Oral-Rat TDLo:	6846 mg/kg
Inhalation-Mouse LC50:	2500 mg/m3
Tin	
Oral-Rat LD50:	N/D
Inhalation-Rat LC50:	N/D
Antimony	
Oral-Rat LD50:	7 g/kg
Inhalation-Rat TCLo:	50 mg/m3/7H/52W-I

Section 12 – Ecological Information

Ecological Data

Ingredient Name:	**Zinc Chloride**
Food Chain Concentration Potential	None
Waterfowl Toxicity	N/A
BOD	None
Aquatic Toxicity	7.2 ppm/96 hr/medium bluegill/TLm

Ingredient Name:	**Ammonium Chloride**
Food Chain Concentration Potential	None
Waterfowl Toxicity	N/A
BOD	N/A
Aquatic Toxicity	6 ppm/96 hr/sunfish/TLm

Ingredient Name:	**Zinc Oxide**
Food Chain Concentration Potential	N/D
Waterfowl Toxicity	N/D
BOD	N/D
Aquatic Toxicity	N/D

Ingredient Name:	**Tin**
Food Chain Concentration Potential	N/D
Waterfowl Toxicity	N/D
BOD	N/D
Aquatic Toxicity	N/D

Ingredient Name:	**Antimony**
Food Chain Concentration Potential	N/D
Waterfowl Toxicity	N/D
BOD	N/D
Aquatic Toxicity	N/D

Section 13 – Disposal Considerations

Waste Classification: Non-regulated solid waste

Disposal Method: Approved landfill

Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with Federal, State, and Local regulation regarding pollution.

Section 14 – Transportation Information

DOT:	Non-regulated
Ocean (IMDG):	Non-regulated
Air (IATA):	Non-regulated
WHMIS (Canada):	Non-regulated

Section 15 – Regulatory Information

Regulatory Data

Ingredient Name:	**Zinc Chloride**
SARA 313	No
TSCA Inventory	Yes
CERCLA RQ	1000 lb.
RCRA Code	N/A

Ingredient Name:	**Ammonium Chloride**
SARA 313	No
TSCA Inventory	Yes
CERCLA RQ	N/A
RCRA Code	N/A

Ingredient Name:	**Zinc Oxide**
SARA 313	Yes
TSCA Inventory	Yes
CERCLA RQ	N/A
RCRA Code	N/A

Ingredient Name:	**Tin**
SARA 313	No
TSCA Inventory	Yes
CERCLA RQ	N/A
RCRA Code	N/A

Ingredient Name:	**Antimony**
SARA 313	No
TSCA Inventory	Yes
CERCLA RQ	5000 lb.
RCRA Code	N/A

Section 16 – Other Information

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made.

Consult RectorSeal for further information: (713) 263-8001

SAFETY DATA SHEET

SDS 0011

Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
RectorSeal No. 5

HMIS CODES

Health	1
Flammability	2
Reactivity	0
PPI	B

PRODUCT CODES
25112, 25191, 25271, 25300, 25431, 25551, 25552, 25631, 25633, 25780, 25790, 25793

CHEMICAL FAMILY
Organic

USE
Pipe Thread Sealant

MANUFACTURER'S NAME
The RectorSeal Corporation
2601 Spenwick Drive
Houston, Texas 77055 USA

EMERGENCY TELEPHONE NO.
Chemtrec 24 Hours
(800)424-9300 USA
(703)527-3887 International

TECHNICAL SERVICE TELEPHONE NO.
(800)231-3345 or (713)263-8001

DATE OF VALIDATION
January 23, 2015

DATE OF PREPARATION
January 9, 2013

Section 2 -- HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
OSHA Hazards
Combustable
TARGET ORGANS
Not Classified
GHS CLASSIFICATION
PHYSICAL HAZARDS
Combustable liquid (Category 4)
HEALTH HAZARDS
Acute Toxicity:
Oral: Not Classified
Dermal: Not Classified
Inhalation: Not Classified
Skin Corrosion/Irritation: Not Classified
Serious Eye Damage/Eye Irritation: Not Classified
Skin Sensitization: Not Classified
Respiratory Sensitization: Not Classified
Germ Cell Mutagenicity: Not Classified
Carcinogenicity: See Section 11
Reproductive Toxicology: Not Classified
Target Organ Systemic Toxicity - Single Exposure: Not Classified
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified
Aspiration Toxicity: Not Classified

GHS Label elements, including precautionary statements
Pictogram: Harmful / Irritant
Signal Word: Warning
Hazard Statements
H303 - May be harmful if swallowed.
H313 - May be harmful in contact with skin.
H335 + H336 - May cause respiratory irritation, and drowsiness or dizziness.
Precautionary Statements
P102 - Keep out of reach of children.
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P240 - Ground/Bond container and receiving equipment

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash hands thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P362 - Take off contaminated clothing and wash before reuse.
EUH066 - Repeated exposure may cause skin dryness or cracking
Precautionary Statements - EU No. 1272/2008

SUMMARY OF ACUTE HAZARDS

Irritation to eyes, nose and throat; drowsiness, narcosis, tremors and other CNS effects at high concentration.

ROUTE OF EXPOSURE, SIGNS AND SYMPTOMS

INHALATION

Nasal and respiratory irritation, dizziness, narcosis, headache, nausea, CNS depression and unconsciousness.

EYE CONTACT

Watering, blurred vision, inflammation and irritation which can result in corneal injury.

SKIN CONTACT

Irritation, dermatitis.

INGESTION

Nausea, vomiting; CNS depression; irritation of gastrointestinal tract, liver and peritoneal wall; lung congestion.

SUMMARY OF CHRONIC HAZARDS

Skin irritation and dermatitis. Possible liver and kidney damage.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Individuals with pre-existing or chronic diseases of the eyes, skin, respiratory system, cardiovascular system, gastrointestinal system, liver or kidneys may have increased susceptibility to excessive exposures.

Section 3 -- COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Diacetone Alcohol
PERCENTAGE BY WEIGHT: 20-30
CAS NUMBER: 123-42-2
EC# : 204-626-7

Section 4 -- FIRST AID MEASURES

If INHALED:	If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
If on SKIN:	Wash with soap and water. If irritation occurs, seek medical attention.
If in EYES:	Flush eyes with large amounts of water for 15 minutes. Get medical attention.
If SWALLOWED:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Section 5 -- FIRE FIGHTING MEASURES

EXTINGUSING MEDIA

Foam, dry chemical, carbon dioxide or water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10).

UNUSUAL FIRE AND EXPLOSION HAZARDS: Combustible - moderate flash point. Vapors heavier than air and may travel along the ground or to low spots at considerable distances to a source of ignition resulting in potential flashback. Burning liquid may float on water. Heat may build up

pressure and rupture containers.

Section 6 -- ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition. Use absorbent materials to prevent footing hazard and to contain. Ventilate area with natural or explosion-proof, forced air ventilation. Avoid flushing into sewers, drains, waterways, and soil. Wear protective clothing and respiratory protection during cleanup.

Section 7 -- HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep container closed and upright when not in use. Do not store near heat, sparks, or open flames.
OTHER PRECAUTIONS: Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues; treat as if full and observe all products precautions. Do not reuse empty containers. KEEP OUT OF REACH OF CHILDREN.

Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENT	UNITS
Diacetone Alcohol	
ACGIH TLV	50 ppm
OSHA PEL	50 ppm

RESPIRATORY PROTECTION (SPECIFY TYPE): In confined poorly ventilated areas, use NIOSH/MSHA approved air purifying or supplied air purifying or supplied air respirators.
VENTILATION - LOCAL EXHAUST: Acceptable
SPECIAL: Explosion-proof equipment.
MECHANICAL (GENERAL): Preferable
OTHER: N/A
PROTECTIVE GLOVES: Wear rubber gloves.
EYE PROTECTION: Chemical splash goggles (ANSI Z-87.1 or equivalent)
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Coveralls recommended.
WORK/HYGIENIC PRACTICES: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	322 F (161 C) @ 760mm Hg
SPECIFIC GRAVITY (H20 = 1):	1.38
VAPOR PRESSURE (mm Hg):	0.3 @ 68 F (20 C)
MELTING POINT:	N/A
VAPOR DENSITY (AIR = 1):	1.1
EVAPORATION RATE (ETHYL ACETATE = 1):	0.14
APPEARANCE/ODOR:	Yellow Paste/Mild Odor
SOLUBILITY IN WATER:	23%
VOLATILE ORGANIC COMPOUNDS(VOC)Content (Theoretical Percentage By Weight):	23% or (317 g/L)
Flash POINT	150 F (65 C) SETA CC
LOWER EXPLOSION LIMIT	N/D
UPPER EXPLOSION LIMIT	N/D

Section 10 -- STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: Heat, sparks, open flames, and strong oxidizing. Temperatures above 500 F (260 C).
INCOMPATIBILITY (MATERIALS TO AVOID): Gaseous oxygen, strong oxidizing materials, molten alkali metals.
HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO2 and fragmented hydrocarbons.
HAZARDOUS POLYMERIZATION: Will not occur.

Section 11 -- TOXICOLOGY INFORMATION

CHRONIC HEALTH HAZARDS

No ingredients in this product is an IARC, NTP or OSHA Lister carcinogen.

TOXICOLOGY DATA

Ingredient Name

Diacetone Alcohol

Oral-Rat	LD50:4000 mg/kg
Inhalation-Human	TCLo: 100 ppm

Section 12 -- Ecological Information

ECOLOGICAL DATA

Ingredient Name

Diacetone Alcohol

Food Chain Concentration Potential	N/A
WATERFOWL TOXICITY	N/A
BOD	N/A
AQUATIC TOXICITY	N/A

Section 13 -- DISPOSAL CONSIDERATIONS

Waste Classification: Non-regulated solid waste
Disposal Method: Approved landfill
Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with Federal, State, and Local regulation regarding pollution.

Section 14 -- TRANSPORTATION INFORMATION

DOT:	Non-Regulated
OCEAN (IMDG):	Non-Regulated
AIR (IATA):	Non-Regulated
WHMIS (CANADA):	Non-Regulated

Section 15 -- REGULATORY INFORMATION

REGULATORY DATA

Ingredient Name

Diacetone Alcohol

SARA 313	N/A
TSCA Inventory	Yes
CERCLA RQ	N/A
RCRA Code	N/A

Section 16 -- OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made. Consult RectorSeal for further information: (713) 263-8001

 RE 66640 4pgs

SAFETY DATA SHEET

SDS 0169

Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

HMIS CODES	
Health	1
Flammability	0
Reactivity	0
PPI	B

PRODUCT NAME
Metacaulk 1000

PRODUCT CODES
66640, 66242, 66302, 66303, 66305, 66307, 66309, 66312

CHEMICAL FAMILY
Organic/Inorganic

USE
Firestopping Sealant

MANUFACTURER'S NAME
The RectorSeal Corporation
2601 Spenwick Drive
Houston, Texas 77055 USA

EMERGENCY TELEPHONE NO.
Chemtrec 24 Hours
(800)424-9300 USA
(703)527-3887 International

DATE OF VALIDATION
January 23, 2015

TECHNICAL SERVICE TELEPHONE NO.
(800)231-3345 or (713)263-8001

DATE OF PREPARATION
May 22, 2012

Section 2 -- HAZARDS IDENTIFICATION

GHS CLASSIFICATION
PHYSICAL HAZARDS: None
HEALTH HAZARDS
Acute Toxicity:
Oral: Not Classified
Dermal: Not Classified
Inhalation: Not Classified
Skin Corrosion/Irritation: Not Classified
Serious Eye Damage/Eye Irritation: Not Classified
Respiratory or Skin Sensitization: Not Classified
Germ Cell Mutagenicity: Not Classified
Carcinogenicity: Not Classified
Reproductive Toxicology: Not Classified
Target Organ Systemic Toxicity - Single Exposure: Not Classified
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified
Aspiration Toxicity: Not Classified

ENVIRONMENTAL HAZARDS
Hazardous to the Aquatic Environment: Not Classified
Acute aquatic toxicity: Not Classified
Chronic aquatic toxicity: Not Classified
Bioaccumulation potential: Not Classified
Rapid degradability: Not Classified

GHS Label elements, including precautionary statements
Pictogram: None
Signal Word: None
Hazard Statements: None
Precautionary Statements:
P102 - Keep out of reach of children.
P264 - Wash hands thoroughly after handling.

Classification according to EU Directives 67/548/EEC or 1999/45/EC
LABELING SYMBOLS: None
RISK R-PHRASES: NOne
SAFETY S-PHRASES:

S2 : Keep out of the reach of children.

SUMMARY OF ACUTE HAZARDS
May cause skin irritation.
ROUTE OF EXPOSURE, SIGNS AND SYMPTOMS
INHALATION
Not a respiratory irritant.
EYE CONTACT
Contact may cause eye irritation.
SKIN CONTACT
Contact may cause skin irritation.
INGESTION
Possible irritation to mucous membranes of the mouth, throat, and stomach.
SUMMARY OF CHRONIC HAZARDS
None known.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Persons with pre-existing skin conditions or chemical allergies may be more susceptible to contact effects of the cured elastomer.

==========

Section 3 -- COMPOSITION/INFORMATION ON INGREDIENTS

% by WT	CAS No.	INGREDIENT	UNITS

None as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.

==========

Section 4 -- FIRST AID MEASURES

If INHALED:	Not a respiratory irritant.
If on SKIN:	Wash with soap and water. If irritation occurs, seek medical attention.
If in EYES:	Immediately flush with large amounts of water. If irritation occurs, seek medical attention.
If SWALLOWED:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

==========

Section 5 -- FIRE FIGHTING MEASURES

EXTINGUSING MEDIA
Foam, dry chemical, carbon dioxide or water fog.
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10).
UNUSUAL FIRE AND EXPLOSION HAZARDS: Heat may build up and rupture closed containers.

==========

Section 6 -- ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

==========

Section 7 -- HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep container closed and upright when not in use. To prevent freezing and possible rupture of container, do not store below 35 F.
OTHER PRECAUTIONS: Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues and vapors; treat as if full and observe all product precautions. Do not reuse empty containers. KEEP OUT OF REACH OF CHILDREN.

==========

Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION (SPECIFY TYPE): None required.
VENTILATION - LOCAL EXHAUST: N/A

SPECIAL: N/A
MECHANICAL (GENERAL): N/A
OTHER: N/A
PROTECTIVE GLOVES: None required.
EYE PROTECTION: None required.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: None required.
WORK/HYGIENIC PRACTICES: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	212 F (100 C) @ 760mm Hg
SPECIFIC GRAVITY (H20 = 1):	1.25
VAPOR PRESSURE (mm Hg):	17 @ 68 F (20 C)
MELTING POINT:	N/A
VAPOR DENSITY (AIR = 1):	N/A
EVAPORATION RATE (ETHYL ACETATE = 1):	>1
APPEARANCE/ODOR:	Red Paste/Mild Odor
SOLUBILITY IN WATER:	Soluble
VOLATILE ORGANIC COMPOUNDS(VOC)Content (Theoretical Percentage By Weight):	<1% or <10 g/L
FLASH POINT	None
LOWER EXPLOSION LIMIT	None
UPPER EXPLOSION LIMIT	None

Section 10 -- STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: None
INCOMPATIBILITY (MATERIALS TO AVOID): None known.
HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO2 and fragmented hydrocarbons.
HAZARDOUS POLYMERIZATION: Will not occur.

Section 11 -- TOXICOLOGY INFORMATION

CHRONIC HEALTH HAZARDS
No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA
Ingredient Name

None

Section 12 -- Ecological Information

ECOLOGICAL DATA
Ingredient Name

None

Food Chain Concentration Potential	N/A
WATERFOWL TOXICITY	N/A
BOD	N/A
AQUATIC TOXICITY	N/A

Section 13 -- DISPOSAL CONSIDERATIONS

Waste Classification: Non-regulated solid waste
Disposal Method: Approved landfill
Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with Federal, State, and Local regulation regarding pollution.

Section 14 -- TRANSPORTATION INFORMATION

DOT:	Non-Regulated
OCEAN (IMDG):	Non-Regulated
AIR (IATA):	Non-Regulated
WHMIS (CANADA):	Non-Regulated

Section 15 -- REGULATORY INFORMATION

REGULATORY DATA
Ingredient Name

None

SARA 313	N/A
TSCA Inventory	All components listed
CERCLA RQ	N/A
RCRA Code	N/A

Section 16 -- OTHER INFORMATION

LABELING SYMBOLS: None
RISK R-PHRASES: None
SAFETY S-PHRASES:
S2 : Keep out of the reach of children.

This document is prepared pursuant to 91/155/EEC ISO 11014-1. The information herein is given in good faith, but no warranty, expressed or implied is made. Consult RectorSeal for further information: (713) 263-8001

TH MT-1-PRO

8 pgs

WORTHINGTON INDUSTRIES

SAFETY DATA SHEET

1. Identification

Product identifier	**MAP-Pro™ Premium Hand Torch Fuel**
Other means of identification	
SDS number	WC001
Product code	Varies
Recommended use	Hand Torch Fuel
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer/Supplier	Worthington Cylinder Corporation
Address	300 E. Breed St., Chilton, WI 5301 United States
Contact person	Ann Stiefvater
E-mail address	Ann.Stiefvater@worthingtonindustries.com
Telephone number	1-920-849-1740
Emergency telephone number	1-703-527-3887 International / CHEMTREC 1-800-424-9300 Domestic

2. Hazard(s) identification

Physical hazards	Flammable gases	Category 1
	Gases under pressure	Liquefied gas
Health hazards	Not classified.	
OSHA defined hazards	Not classified.	
Label elements		

Signal word	Danger
Hazard statement	Extremely flammable gas. Contains gas under pressure; may explode if heated.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Response	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
Storage	Protect from sunlight. Store in a well-ventilated place.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	May displace oxygen and cause rapid suffocation.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Propylene		115-07-1	99.5 - 100

Impurities

Chemical name	CAS number	%
Propane	74-98-6	0 - 0.5

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists. If frostbite occurs, immerse involved area in warm water (between 100°F/38°C and 110°F/43°C, not exceeding 112°F/44°C). Keep immersed for 20 to 40 minutes. Seek medical assistance.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Ingestion is not a typical route of exposure for gases or liquefied gases.

Most important symptoms/effects, acute and delayed Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. May cause drowsiness or dizziness.

Indication of immediate medical attention and special treatment needed Exposure may aggravate pre-existing respiratory disorders. Treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Dry chemical, CO2, water spray, fog, or foam.

Unsuitable extinguishing media Full water jet.

Specific hazards arising from the chemical Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Move container from fire area if it can be done without risk.

Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Extremely flammable gas.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away.

Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8).

Methods and materials for containment and cleaning up Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel. For waste disposal, see Section 13 of the SDS.

Environmental precautions Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

7. Handling and storage

Precautions for safe handling

Eliminate all sources of ignition. Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Do not breathe gas. Do not get in eyes, on skin, on clothing. Use only with adequate ventilation.

Conditions for safe storage, including any incompatibilities

Store in accordance with local, regional, national, and international regulations. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry, well-ventilated place. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Impurities	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m3 1000 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Propylene (CAS 115-07-1)	TWA	500 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Impurities	Type	Value
Propane (CAS 74-98-6)	TWA	1800 mg/m3 1000 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Follow standard monitoring procedures.

Appropriate engineering controls

Provide adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear approved safety glasses or goggles.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Skin protection

Other

Wear protective clothing appropriate for the risk of exposure.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards

Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Appearance

Colorless liquefied gas.

Physical state

Gas.

Form

Compressed liquefied gas.

Color

Colorless.

Odor

Hydrocarbon or mercaptan if odorized.

Odor threshold

Not available.

pH

Not applicable.

Melting point/freezing point

-301 °F (-185 °C)

Initial boiling point and boiling range

-54.4 °F (-48 °C) 101.325 kPa

Flash point

-162.0 °F (-107.8 °C)

Evaporation rate	Not applicable.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	2 %
Flammability limit - upper (%)	11 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	109.73 PSIG (21°C)
Vapor density	1.5 (0°C) (gas)
Relative density	0.52 (liquid)
Solubility(ies)	
Solubility (water)	384 mg/l - Slightly soluble in water.
Partition coefficient (n-octanol/water)	1.77
Auto-ignition temperature	927 °F (497.22 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Molecular weight	42 g/mol
Percent volatile	100 %
VOC (Weight %)	100 % 100 % EPA estimated

10. Stability and reactivity

Reactivity	The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Polymerization will not occur. May form explosive mixture with air. This product may react with oxidizing agents.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents. Strong acids. Halogens.
Hazardous decomposition products	Carbon oxides. Hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Inhalation	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Ingestion	Not likely, due to the form of the product.
Symptoms related to the physical, chemical and toxicological characteristics	Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. May cause drowsiness or dizziness.

Information on toxicological effects

Acute toxicity	High concentration: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Components	Species	Test Results
Propylene (CAS 115-07-1)		
Acute		
Inhalation		
LC50	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours

Skin corrosion/irritation Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Serious eye damage/eye irritation Direct contact with liquefied gas may cause eye damage from frostbite.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity Not classified.

IARC Monographs. Overall Evaluation of Carcinogenicity

Propylene (CAS 115-07-1) 3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not classified.

Chronic effects May cause central nervous system effects.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Persistence and degradability The product is readily biodegradable.

Bioaccumulative potential The product is not expected to bioaccumulate.

Partition coefficient n-octanol / water (log Kow)

Propylene (CAS 115-07-1) 1.77

Mobility in soil May evaporate quickly.

Mobility in general May evaporate quickly.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1077

UN proper shipping name Propylene

Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Special provisions	19, T50
Packaging exceptions	306
Packaging non bulk	304
Packaging bulk	314, 315

IATA

UN number	UN1077
UN proper shipping name	Propylene
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1077
UN proper shipping name	Propylene
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Propane (CAS 74-98-6)	LISTED
Propylene (CAS 115-07-1)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Propylene	115-07-1	99.5 - 100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. New Jersey Worker and Community Right-to-Know Act

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Rhode Island RTK

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 07-December-2012
Revision date 25-November-2015
Version # 03

Further information

HMIS® is a registered trade and service mark of the NPCA.
HMIS Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard.
Health: 1. Flammability: 4. Physical hazard: 1.

HMIS® ratings

Health: 1
Flammability: 4
Physical hazard: 1

NFPA ratings

Disclaimer

All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.

TU PT 1
8 pgs

WORTHINGTON CYLINDERS

SAFETY DATA SHEET

1. Identification

Product identifier Propane

Other means of identification

SDS number WC002

Product code UN1075

Recommended use Portable fuel.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Worthington Cylinder Corporation

Address 300 E. Breed St., Chilton, WI 5301
United States

Contact person Ann Stiefvater

E-mail address Ann.Stiefvater@worthingtonindustries.com

Telephone number 1-920-849-1740

Emergency telephone number 1-703-527-3887 International / CHEMTREC 1-800-424-9300 Domestic

2. Hazard(s) identification

Physical hazards

Flammable gases	Category 1
Gases under pressure	Liquefied gas

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Extremely flammable gas. Contains gas under pressure; may explode if heated.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage Protect from sunlight. Store in a well-ventilated place.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) May displace oxygen and cause rapid suffocation.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Propane	74-98-6	87.5-100
Ethane	74-84-0	0-7
Propylene	115-07-1	0-5
Butane	106-97-8	0-2.5

Additives

Chemical name	CAS number	%
Ethyl Mercaptan	75-08-1	<0.005

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists. If frostbite occurs, immerse involved area in warm water (between 100 F/38 C and 110 F/43 C, not exceeding 112 F/44 C). Keep immersed for 20 to 40 minutes. Seek medical assistance.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Ingestion is not a typical route of exposure for gases or liquefied gases.

Most important symptoms/effects, acute and delayed Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. May cause drowsiness or dizziness.

Indication of immediate medical attention and special treatment needed Exposure may aggravate pre-existing respiratory disorders. Treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Dry chemical, CO2, water spray, fog, or foam.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Move container from fire area if it can be done without risk.

Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

General fire hazards Extremely flammable gas.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away.

Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8).

Methods and materials for containment and cleaning up Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel.

Environmental precautions Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

7. Handling and storage

Precautions for safe handling Eliminate all sources of ignition. Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Do not breathe gas. Do not get in eyes, on skin, on clothing. Use only with adequate ventilation.

Conditions for safe storage, including any incompatibilities	Store in accordance with local, regional, national, and international regulations. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry, well-ventilated place. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m3 1000 ppm
Additives	**Type**	**Value**
Ethyl Mercaptan (CAS 75-08-1)	Ceiling	25 mg/m3 10 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Propylene (CAS 115-07-1)	TWA	500 ppm
Additives	**Type**	**Value**
Ethyl Mercaptan (CAS 75-08-1)	TWA	0.5 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m3 800 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m3 1000 ppm
Additives	**Type**	**Value**
Ethyl Mercaptan (CAS 75-08-1)	Ceiling	1.3 mg/m3 0.5 ppm

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Provide adequate ventilation and minimize the risk of inhalation of gas. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear approved safety glasses or goggles.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear protective clothing appropriate for the risk of exposure.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Appearance	Colorless gas.
Physical state	Gas.
Form	Compressed liquefied gas.
Color	Colorless.
Odor	Rotten egg.

Odor threshold	Not available.
pH	Not applicable.
Melting point/freezing point	-306.4 °F (-188 °C)
Initial boiling point and boiling range	-43.6 °F (-42 °C) 14.7 psia
Flash point	-155.2 °F (-104.0 °C)
Evaporation rate	Not applicable.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	2.15 %
Explosive limit - upper (%)	9.6 %
Vapor pressure	127 psig (21°C / 70°F)
Vapor density	Not available.
Relative density	0.504 (liquid) 1.5 (vapor) (air=1) @ 15°C / 60°F
Solubility(ies)	
Solubility (water)	Slightly soluble in water.
Partition coefficient (n-octanol/water)	1.77
Auto-ignition temperature	809.6 °F (432 °C)
Decomposition temperature	Not available.
Viscosity	Not applicable.
Other information	
Molecular weight	45 g/mol
Percent volatile	100 %

10. Stability and reactivity

Reactivity	Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Polymerization will not occur.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents. Strong acids. Halogens.
Hazardous decomposition products	Carbon oxides. Hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Not likely, due to the form of the product.
Inhalation	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Symptoms related to the physical, chemical and toxicological characteristics	Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. May cause drowsiness or dizziness.

Information on toxicological effects

Acute toxicity	High concentration: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Components	Species	Test Results
Butane (CAS 106-97-8)		
Acute		
Inhalation		
LC50	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours
Propane (CAS 74-98-6)		
Acute		
Inhalation		
LC50	Rat	> 1442 mg/l, 15 Minutes
Propylene (CAS 115-07-1)		
Acute		
Inhalation		
LC50	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours

Additives	Species	Test Results
Ethyl Mercaptan (CAS 75-08-1)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
LC50	Mouse	4420 mg/l, 4 Hours
Oral		
LD50	Rat	682 mg/kg

Skin corrosion/irritation Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Serious eye damage/eye irritation Direct contact with liquefied gas may cause eye damage from frostbite.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity Not classified.

IARC Monographs. Overall Evaluation of Carcinogenicity

Propylene (CAS 115-07-1) 3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not classified.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Persistence and degradability The product is readily biodegradable.

Bioaccumulative potential The product is not expected to bioaccumulate.

Partition coefficient n-octanol / water (log Kow)

Propane (CAS Mixture)	1.77
Butane (CAS 106-97-8)	2.89
Propane (CAS 74-98-6)	2.36
Propylene (CAS 115-07-1)	1.77

Mobility in soil May evaporate quickly.

Mobility in general May evaporate quickly.

Other adverse effects	None known.

13. Disposal considerations

Disposal instructions	Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 °F
Waste from residues / unused products	Dispose in accordance with all applicable regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1075
UN proper shipping name	Petroleum Gases, liquefied
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	19, T50
Packaging exceptions	306
Packaging non bulk	304
Packaging bulk	314, 315

IATA

UN number	UN1075
UN proper shipping name	Petroleum Gases, liquefied
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	No
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1075
UN proper shipping name	Petroleum Gases, liquefied
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This product is a compressed or liquefied gas and when transported in bulk is covered under IGC code.

15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Butane (CAS 106-97-8)	LISTED
Ethyl Mercaptan (CAS 75-08-1)	LISTED
Propane (CAS 74-98-6)	LISTED
Propylene (CAS 115-07-1)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Propylene	115-07-1	0-5

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 106-97-8)
Ethyl Mercaptan (CAS 75-08-1)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Butane (CAS 106-97-8)
Ethyl Mercaptan (CAS 75-08-1)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. New Jersey Worker and Community Right-to-Know Act

Butane (CAS 106-97-8)
Ethyl Mercaptan (CAS 75-08-1)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Butane (CAS 106-97-8)
Ethyl Mercaptan (CAS 75-08-1)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Rhode Island RTK

Butane (CAS 106-97-8)
Ethyl Mercaptan (CAS 75-08-1)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-May-2014

Revision date 25-March-2015

Version # 03

NFPA Ratings

Disclaimer

All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.

W8 Propane
8 pgs

Safety Data Sheet

Chemical Name: Propane

Synonyms: Dimethylmethane, Liquefied Petroleum Gas (LPG), Sales Propane, Commercial Propane, Refinery Propane, Product Propane (non-odorized)

Section 1 - Chemical Product and Company Identification

Company Information

Ferrellgas (Blue Rhino)
One Liberty Plaza
Liberty, MO 64068
Emergency # 800-424-9300 (CHEMTREC)
General SDS assistance # 855-738-9178 (Ferrellgas Safety Department)

Product Information

Product: Propane (odorized)
Chemical Name: Propane
Chemical Family: Liquified Petroleum Gas (Paraffinic Hydrocarbons)
Chemical Formula: C_3H_8

Section 2 - Hazards Identification

GHS Classification:

Flammable Gas - Category 1
Gases Under Pressure - Liquefied Gas

GHS LABEL ELEMENTS

Pictogram(s)

Signal Word

Danger

Hazard Statements

H220 - Extremely flammable gas.
H280 - Contains gas under pressure, may explode if heated.

Precautionary Statements

Prevention
P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
Response
P376 - Stop leak if safe to do so.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
Storage
P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410 - Protect from sunlight.
Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition / Information on Ingredients

CAS #	Component	Percent
74-98-6	Propane	85 - 100
106-97-8	Butane and heavier	0 - 2.5
74-84-0	Ethane	0 - 5
115-07-1	Propylene	0 - 10
75-08-1	Ethyl Mercaptan	0 - 0.0025

Section 4 - First Aid Measures

First Aid: Eyes

Direct contact with liquid propane can result in eye burns.
In case of contact with eyes, hold eyelids open to allow liquid to evaporate and gently flush with lukewarm water. Cover eyes to protect from light. Seek immediate medical attention.

First Aid: Skin

Direct contact with liquid propane can result in skin burns (frostbite).
Remove contaminated clothing. In case of blistering, frostbite or freeze burns seek immediate medical attention.

First Aid: Ingestion

Risk of ingestion is extremely low. However, if oral exposure occurs, seek immediate medical assistance.

First Aid: Inhalation

This product is classified as a simple asphyxiant. High vapor concentrations may produce a reversible central nervous system depression (anesthesia) and asphyxiation.
Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

Section 5 - Fire Fighting Measures

General Fire Hazards

See Section 9 for Flammability Properties.
Liquid releases flammable vapors at well below ambient temperatures and readily forms a flammable mixture with air. Dangerous fire and explosion hazard when exposed to heat, sparks or flame. Vapors are heavier than air and may travel long distances to a point of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

Use extinguishing media suitable for the surrounding material, preferably or, any extinguisher suitable for Class B fires, dry chemical, fire fighting foam, CO_2, and other gaseous agents. However, fire should not be extinguished unless flow of gas can be immediately stopped.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak. Use water to cool equipment, surfaces and containers exposed to fire and excessive heat. For large fire the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Isolate area, particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped. Withdraw immediately in the event of a rising sound from a venting safety device. Large fires typically require specially trained personnel and equipment to isolate and extinguish the fire.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Section 6 - Accidental Release Measures

Recovery and Neutralization

Stop the source of the release, if safe to do so.

Materials and Methods for Clean-Up

Do not flush down sewer or drainage systems. Do not touch spilled liquid (frostbite/freeze burn hazard!). Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

Emergency Measures

Evacuate nonessential personnel and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction, stay upwind and uphill, if possible. Evaluate the direction of product travel. Vapor cloud may be white, but color will dissipate as cloud disperses - fire and explosion hazard is still present!

Personal Precautions and Protective Equipment

Do not touch spilled liquid (frostbite/freeze burn hazard!).

Environmental Precautions

Do not flush down sewer or drainage systems.

Prevention of Secondary Hazards

None

Section 7 - Handling and Storage

Handling Procedures

Keep away from flame, sparks, ingnition sources and excessive temperatures. Use only in well ventilated areas.

Storage Procedures

Store only in approved containers. Keep away from flame, sparks, excessive temperatures and open flame. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Incompatibilities

Keep away from strong oxidizers, ignition sources and heat. Explosion hazard when exposed to chlorine dioxide. Heating barium peroxide with propane causes violent exothermic reaction. Heated chlorine-propane mixtures are explosive under some conditions.

Section 8 - Exposure Controls / Personal Protection

Component Exposure Limits

Propane (74-98-6)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 1000 ppm TWA; 1800 mg/m3 TWA
NIOSH: 1000 ppm TWA; 1800 mg/m3 TWA

Ethane (74-84-0)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)

Propylene (115-07-1)

ACGIH: 500 ppm TWA

Engineering Measures

Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified/controlled areas.

Personal Protective Equipment: Respiratory

Use a NIOSH approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere. CAUTION: Flammability limits (i.e., explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Personal Protective Equipment: Hands

Use cold-impervious, insulating gloves where contact with liquid may occur.

Personal Protective Equipment: Eyes

Where there is a possibility of liquid contact, wear splash-proof safety glasses and faceshield.

Personal Protective Equipment: Skin and Body

Where contact with liquid may occur, wear appropriate cold insulating protective clothing and faceshield.

Section 9 - Physical & Chemical Properties

Appearance:	Colorless
Physical State:	Gas
Max Vapor Pressure:	208 psig @ 100 °F (37.8 °C)
Boiling Point:	-43.8°F (-42.1°C)
Solubility (H2O):	slight (0.1 to 1.0%)
Expansion Ratio:	1 to 270 (from liquid to gas @ 14.7 psia)
Evaporation Rate:	ND
Octanol/H2O Coeff.:	ND
Flash Point Method:	PMCC
Upper Flammability Limit (UFL):	9.6%
Lower Flammability Limit (LFL):	2.15%

Odor:	Odorless
pH:	ND
Vapor Density:	1.56 @ 32°F (0°C)
Molecular Weight:	44.096
Specific Gravity:	1.52 (Air = 1)
Burning Rate:	ND
VOC:	ND
Flash Point:	-156°F (-104 °C)
Auto Ignition:	842°F (450°C)

Section 10 - Chemical Stability & Reactivity Information

Chemical Stability

This is a stable material.

Hazardous Polymerization

Will not occur.

Conditions to Avoid

Keep away from strong oxidizers, ignition sources and heat.

Incompatible Products

Explosion hazard when exposed to chlorine dioxide. Heating barium peroxide with propane causes violent exothermic reaction. Heated chlorine-propane mixtures are explosive under some conditions.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke) may be formed during combustion.

Section 11 - Toxicological Information

Acute Toxicity

A: General Product Information

Propane exhibits some degree of anesthetic action and is mildly irritating to the mucous membranes. At high concentrations propane acts as a simple asphyxiant without other significant physiological effects. High concentrations may cause death due to oxygen depletion.

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Vapors are not irritating. Direct contact to skin or mucous membranes with liquefied product or cold vapor may cause freeze burns and frostbite. Contact to mucous membranes with liquefied product may cause frostbite and freeze burns. Signs of frostbite include a change in the color of the skin to gray or white, possibly followed by blistering. Skin may become inflamed and painful.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors are not irritating. However, contact with liquid or cold vapor may cause frostbite, freeze burns, and permanent eye damage.

Potential Health Effects: Ingestion

Ingestion is unlikely. Contact with mucous membranes with liquefied product may cause frostbite and freeze burns.

Potential Health Effects: Inhalation

This product is considered to be non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations. This product is a simple asphyxiant. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces. Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, and may occur in several stages. Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, incoordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities. Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about 6% to 8% or less.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

This product is not reported to have any carcinogenic effects.

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ repeat effects.

Aspiration Respiratory Organs Hazard

This product is not reported to have any aspiration hazard effects.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

Liquid release is only expected to cause localized, non-persistent environmental damage, such as freezing. Biodegradation of this product may occur in soil and water. Volatilization is expected to be the most important removal process in soil and water. This product is expected to exist entirely in the vapor phase in ambient air.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data is available for this product's components.

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

Section 13 - Disposal Considerations

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - Transportation Information

DOT Information

UN #: 1075 or 1978 Hazard Class: 2.1

Shipping Name: Petroleum Gases, Liquefied

Placard:

Section 15 - Regulatory Information

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Propylene (115-07-1)

SARA 313: 1.0 % de minimis concentration

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
--	--	X	X	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION PERCENT BY VOLUME
Propylene (115-07-1)	30 max

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Propane	74-98-6	No	Yes	Yes	Yes	Yes	Yes
Ethane	74-84-0	No	Yes	Yes	Yes	Yes	Yes
Propylene	115-07-1	Yes	Yes	Yes	Yes	Yes	Yes

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

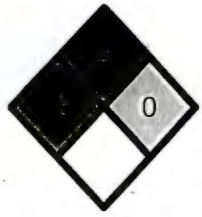
Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EU
Propane	74-98-6	Yes	DSL	EINECS
Ethane	74-84-0	Yes	DSL	EINECS
Propylene	115-07-1	Yes	DSL	EINECS

*** Section 16 - Other Information ***

NFPA® Hazard Rating	Health	2	
	Fire	4	
	Reactivity	0	



HMIS® Hazard Rating	Health	2	Moderate
	Fire	4	Severe
	Physical	0	Minimal

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry; TSCA = Toxic Substance Control Act; EU = European Union; CAN = Canada

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Issue Information

This Safety Data Sheet supersedes all previous editions.

Issued: January, 2015

Issued by: Ferrellgas Safety Department

Ferrellgas
One Liberty Plaza
Liberty, MO 64068

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6 pgs.

WHITLAM

Safety Data Sheet

SDS ID: Stock Code FT
Revision date: December 23, 2015

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **Flux-Tyte Solder Flux Paste**
Synonyms: None
Chemical family: N/A
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **330-334-2524 Available during normal business hours**

Section 2. HAZARDS IDENTIFICATION

Health Hazards: Skin corrosion/irritation, Category 1B
Serious eye damage/eye irritation, Category 1

Hazard Statement:
Causes severe skin burns and eye damage.

Danger

Precautionary Statements

Inhalation: Do not breathe dusts or mists. Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor.

Ingestion: Rinse mouth. Do not induce vomiting.

Skin Contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Petrolatum	8009-03-8	60 - 100
Zinc chloride	7646-85-7	15 - 40
Ammonium chloride	12125-02-9	1 - 5

**Note: The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Ingestion: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Call a physician or poison control center immediately. Remove contact lenses, if present and easy to do.

Symptoms/effects:
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Immediate medical attention/action:
Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

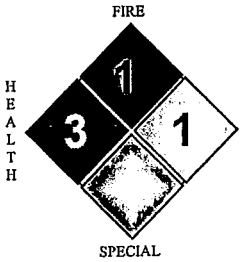
Section 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Dry chemical, alcohol foam, carbon dioxide. Do not use water jet, as this may spread burning material.

Specific hazards: Product will float and can be re-ignited at the water's surface. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Special fire-fighting procedures: Firefighters should wear proper full protective equipment and self-contained breathing apparatus. Move containers from fire area if it can be done without risk. Water spray may be ineffective. Water spray may only be useful in cooling equipment and containers exposed to heat and flame.

	NFPA rating:	HMIS rating:
Health:	3	3
Flammability:	1	1
Instability/reactivity:	1	1
Other:	N/A	N/A



REACTIVITY

Serious Hazard
FP - above 200°F
Unstable if heated
N/A

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Clean-up personnel should wear appropriate chemically protective equipment and respiratory protection.
Large Spill:	For large product users or spills involving large quantities, it is recommended that the purchaser establish a spill prevention, control and countermeasure plan. This plan should include procedures for proper storage, as well as clean-up of spills or leaks. The procedure should conform to safe practices and provide for proper recovery and/or disposal.
Methods for Containment and Clean up	Eliminate all sources of heat and flame. Ventilate area of release. If material is in paste form, scrape up into suitable containers. If material is in dust form, clean up using dustless methods (for example, HEPA vacuum). Do not use compressed air. Place any recovered material in closed, labelled containers for recycling or disposal (see below). Keep out of waterways. Notify the appropriate authorities as required.

Section 7. HANDLING AND STORAGE

Handling:	Wear appropriate chemically protective equipment. Use in a well ventilated area. Avoid inhalation and ingestion of product, and activities that generate dust or fume. Avoid contact with skin, eyes, and clothing. Keep melting temperatures as low as possible to minimize the generation of fumes. NOTE: Inadvertent contaminants to product, such as moisture, ice, snow, grease or oil can cause an explosion when charged to a molten metal bath or melting furnace. (Preheating metal will remove moisture from product). Keep away from oxidizing materials and incompatibles. Use caution when opening cap. Keep container closed when not in use. Wash thoroughly after handling.
Storage:	Store in a cool, dry, well-ventilated area away from incompatible material, heat and flame. Practice good housekeeping procedures to prevent accumulation of dust or refuse. Keep material dry.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [c]
Zinc chloride	7646-85-7	1 mg/m^3 (fume) (TWA) 2 mg/m^3 (fume) (STEL)	1 mg/m^3 (fume)	N/A
Ammonium chloride	12125-02-9	10 mg/m^3 (fume) (TWA)	10 mg/m^3 (fume) (TWA) (final rule/vacated value)	N/A

Engineering measures: An eyewash station and safety shower should be made available in the immediate working area. Other equipment, including chemically resistant apron, may be required according to workplace standards.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: For prolonged exposure or if the TLV is exceeded, wear NIOSH-approved respirators. Use in well ventilated area. Use general ventilation for prolonged exposures or if the TLV is not known.

Skin and body protection: Gloves impervious to the material must be worn. Advice should be sought from glove suppliers.

Eye protection: Safety goggles, to prevent product from entering the eyes. Safety glasses or goggles AND a full face shield are recommended around molten metal.

Hygiene measures: Avoid inhalation of vapors, fumes and dusts. Avoid contact with eyes, skin and clothing. Do not permit eating, drinking or the use of cosmetics or tobacco products while handling or processing material, or in product work areas. Practice good personal hygiene procedures. Wash hands and face thoroughly before eating, drinking, applying cosmetics or using tobacco products. Remove soiled clothing and wash it thoroughly before reuse.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brownish to white paste
Physical state (solid/liquid/gas):	Paste
Substance type (pure/mixture):	Mixture
Color:	Brownish to white
Odor:	Slight petroleum
Molecular weight:	Not Available
pH:	Not Available
Boiling point/range (5-95%):	Not Available
Melting point/range:	95°F (35°C)
Decomposition temperature:	Not Available
Specific gravity:	0.87 @ 60°F (15.6°C)
Vapor density:	Not Available
Vapor pressure:	Not Available
Evaporation rate (Butyl acetate= 1):	Not Available
Flash point, method used:	360°-430°F (182°C-221°C) (TCC)
Water solubility:	Insoluble
VOC Content:	11.7 g/l, <1%
Auto-ignition temperature:	No data
Flammable limits in air — lower (%):	No data
Flammable limits in air — upper (%):	No data

Section 10. STABILITY AND REACTIVITY

Reactivity: Stable under ambient pressure and temperature.

Stability: Stable under the recommended storage and handling conditions prescribed. May be corrosive to metals such as copper and its alloys (e.g. brass, bronze), aluminum, ferrous metals (e.g. cast iron), carbon steel and some stainless steels (e.g. 303, 310, 321, 400 series).

Possibly hazardous reactions: Contact with acids may evolve hydrogen chloride gas. Contact with strong alkalis may evolve ammonia gas.

Conditions to avoid: Avoid extreme heat and direct flame. Contact with incompatible materials.

Incompatible Materials: Strong oxidizers (e.g. chlorine, peroxides, etc.), strong acids, strong alkalis, potassium, turpentine, cyanide, sulfides, powdered zinc, halogenated compounds, lead and silver salts.

Hazardous decomposition products: Ammonia.

Polymerization: Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity: No data available.

Product information:

Name	CAS No.	Inhalation:	Oral:	Dermal:
Petrolatum	8009-03-8	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 3,600 mg/kg
Zinc chloride	7646-85-7	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 350 mg/kg	LD_{50} (Rabbit) N/A
Ammonium chloride	12125-02-9	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 1,650 mg/kg	LD_{50} (Rabbit) N/A

LC_{50} - The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours).

Chronic toxicity: Prolonged or repeated skin contact may cause severe drying and cracking of the skin (dermatitis).

Sensitization: None known

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity effects: No data available

Persistence: No data available

Degradability: No data available

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: Review federal, state and local government requirements prior to disposal. May have value on a recycled basis. Dispose in accordance with all applicable government regulations.

Section 14. TRANSPORT INFORMATION

Proper Shipping Name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Zinc chloride)

UN No: UN3260

Primary Class(es): 8

Subsidiary Class(es): None

Packing Group: III

Other Shipping Information: Within Canada, the 'Limited Quantity Exemption' may apply for containers which hold 5 Kilograms or less of the product. Under the TDGR, refer to Section 1.17 for additional 'Limited Quantity Exemption' requirements, if shipping under this exemption.

Section 15. REGULATORY INFORMATION

U.S. federal regulatory information:

No information available

NOTE: *User must consult with applicable state and local agencies for special specifics, determinations or compliance obligations regarding this product.*

Section 16. OTHER INFORMATION

The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of this data. No warranty against infringement of any patent, copyright or trademark is made or implied.

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WHITLAM

Safety Data Sheet

SDS ID: Stock Code FT
Revision date: December 23, 2015

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **Flux-Tyte Solder Flux Paste**
Synonyms: None
Chemical family: N/A
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **330-334-2524 Available during normal business hours**

Section 2. HAZARDS IDENTIFICATION

Health Hazards: Skin corrosion/irritation, Category 1B
Serious eye damage/eye irritation, Category 1

Danger

Hazard Statement:
Causes severe skin burns and eye damage.

Precautionary Statements

Inhalation: Do not breathe dusts or mists. Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor.

Ingestion: Rinse mouth. Do not induce vomiting.

Skin Contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Petrolatum	8009-03-8	60 - 100
Zinc chloride	7646-85-7	15 - 40
Ammonium chloride	12125-02-9	1 - 5

***Note:** The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Ingestion: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Call a physician or poison control center immediately. Remove contact lenses, if present and easy to do.

Symptoms/effects:

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Immediate medical attention/action:

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

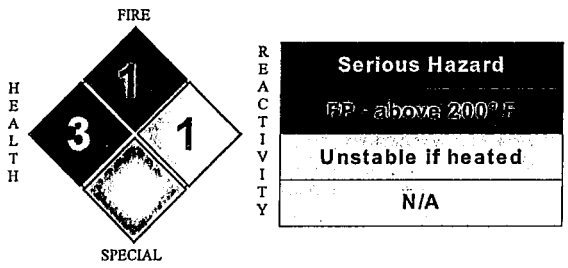
Section 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Dry chemical, alcohol foam, carbon dioxide. Do not use water jet, as this may spread burning material.

Specific hazards: Product will float and can be re-ignited at the water's surface. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Special fire-fighting procedures: Firefighters should wear proper full protective equipment and self-contained breathing apparatus. Move containers from fire area if it can be done without risk. Water spray may be ineffective. Water spray may only be useful in cooling equipment and containers exposed to heat and flame.

	NFPA rating:	HMIS rating:
Health:	3	3
Flammability:	1	1
Instability/reactivity:	1	1
Other:	N/A	N/A



Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Clean-up personnel should wear appropriate chemically protective equipment and respiratory protection.
Large Spill:	For large product users or spills involving large quantities, it is recommended that the purchaser establish a spill prevention, control and countermeasure plan. This plan should include procedures for proper storage, as well as clean-up of spills or leaks. The procedure should conform to safe practices and provide for proper recovery and/or disposal.
Methods for Containment and Clean up	Eliminate all sources of heat and flame. Ventilate area of release. If material is in paste form, scrape up into suitable containers. If material is in dust form, clean up using dustless methods (for example, HEPA vacuum). Do not use compressed air. Place any recovered material in closed, labelled containers for recycling or disposal (see below). Keep out of waterways. Notify the appropriate authorities as required.

Section 7. HANDLING AND STORAGE

Handling:	Wear appropriate chemically protective equipment. Use in a well ventilated area. Avoid inhalation and ingestion of product, and activities that generate dust or fume. Avoid contact with skin, eyes, and clothing. Keep melting temperatures as low as possible to minimize the generation of fumes. NOTE: Inadvertent contaminants to product, such as moisture, ice, snow, grease or oil can cause an explosion when charged to a molten metal bath or melting furnace. (Preheating metal will remove moisture from product). Keep away from oxidizing materials and incompatibles. Use caution when opening cap. Keep container closed when not in use. Wash thoroughly after handling.
Storage:	Store in a cool, dry, well-ventilated area away from incompatible material, heat and flame. Practice good housekeeping procedures to prevent accumulation of dust or refuse. Keep material dry.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [c]
Zinc chloride	7646-85-7	1 mg/m³ (fume) (TWA) 2 mg/m³ (fume) (STEL)	1 mg/m³ (fume)	N/A
Ammonium chloride	12125-02-9	10 mg/m³ (fume) (TWA)	10 mg/m³ (fume) (TWA) (final rule/vacated value)	N/A

Engineering measures: An eyewash station and safety shower should be made available in the immediate working area. Other equipment, including chemically resistant apron, may be required according to workplace standards.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: For prolonged exposure or if the TLV is exceeded, wear NIOSH-approved respirators. Use in well ventilated area. Use general ventilation for prolonged exposures or if the TLV is not known.

Skin and body protection: Gloves impervious to the material must be worn. Advice should be sought from glove suppliers.

Eye protection: Safety goggles, to prevent product from entering the eyes. Safety glasses or goggles AND a full face shield are recommended around molten metal.

Hygiene measures: Avoid inhalation of vapors, fumes and dusts. Avoid contact with eyes, skin and clothing. Do not permit eating, drinking or the use of cosmetics or tobacco products while handling or processing material, or in product work areas. Practice good personal hygiene procedures. Wash hands and face thoroughly before eating, drinking, applying cosmetics or using tobacco products. Remove soiled clothing and wash it thoroughly before reuse.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brownish to white paste
Physical state (solid/liquid/gas):	Paste
Substance type (pure/mixture):	Mixture
Color:	Brownish to white
Odor:	Slight petroleum
Molecular weight:	Not Available
pH:	Not Available
Boiling point/range (5-95%):	Not Available
Melting point/range:	95°F (35°C)
Decomposition temperature:	Not Available
Specific gravity:	0.87 @ 60°F (15.6°C)
Vapor density:	Not Available
Vapor pressure:	Not Available
Evaporation rate (Butyl acetate= 1):	Not Available
Flash point, method used:	360°-430°F (182°C-221°C) (TCC)
Water solubility:	Insoluble
VOC Content:	11.7 g/l, <1%
Auto-ignition temperature:	No data
Flammable limits in air — lower (%):	No data
Flammable limits in air — upper (%):	No data

Section 10. STABILITY AND REACTIVITY

Reactivity: Stable under ambient pressure and temperature.

Stability: Stable under the recommended storage and handling conditions prescribed. May be corrosive to metals such as copper and its alloys (e.g. brass, bronze), aluminum, ferrous metals (e.g. cast iron), carbon steel and some stainless steels (e.g. 303, 310, 321, 400 series).

Possibly hazardous reactions: Contact with acids may evolve hydrogen chloride gas. Contact with strong alkalis may evolve ammonia gas.

Conditions to avoid: Avoid extreme heat and direct flame. Contact with incompatible materials.

Incompatible Materials: Strong oxidizers (e.g. chlorine, peroxides, etc.), strong acids, strong alkalis, potassium, turpentine, cyanide, sulfides, powdered zinc, halogenated compounds, lead and silver salts.

Hazardous decomposition products: Ammonia.

Polymerization: Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity: No data available.

Product information:

Name	CAS No.	Inhalation:	Oral:	Dermal:
Petrolatum	8009-03-8	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 3,600 mg/kg
Zinc chloride	7646-85-7	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 350 mg/kg	LD_{50} (Rabbit) N/A
Ammonium chloride	12125-02-9	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 1,650 mg/kg	LD_{50} (Rabbit) N/A

LC_{50} - The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours).

Chronic toxicity: Prolonged or repeated skin contact may cause severe drying and cracking of the skin (dermatitis).

Sensitization: None known

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity effects: No data available

Persistence: No data available

Degradability: No data available

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: Review federal, state and local government requirements prior to disposal. May have value on a recycled basis. Dispose in accordance with all applicable government regulations.

Section 14. TRANSPORT INFORMATION

Proper Shipping Name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Zinc chloride)

UN No: UN3260

Primary Class(es): 8

Subsidiary Class(es): None

Packing Group: III

Other Shipping Information: Within Canada, the 'Limited Quantity Exemption' may apply for containers which hold 5 Kilograms or less of the product. Under the TDGR, refer to Section 1.17 for additional 'Limited Quantity Exemption' requirements, if shipping under this exemption.

Section 15. REGULATORY INFORMATION

U.S. federal regulatory information:

No information available

NOTE: *User must consult with applicable state and local agencies for special specifics, determinations or compliance obligations regarding this product.*

Section 16. OTHER INFORMATION

The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of this data. No warranty against infringement of any patent, copyright or trademark is made or implied.

WL IG 16

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WHITLAM

Safety Data Sheet

SDS ID: Stock Code IG
Revision date: February 4, 2015

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **"Blue Magic" Industrial Grade Pipe Thread Compound**
Synonyms: None
Chemical family: Pipe Thread Hydrocarbon Mixture
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **CHEMTEL** **800-255-3924 Available 24 hours**

Section 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Harmful if swallowed. Prolonged or repeated skin contact may cause drying, cracking, or irritation. High vapor concentrations may cause drowsiness and result in irritation of the eyes, nose, and throat and central nervous system (CNS) depression.

GHS Hazard and precautionary statements

WARNING — Serious Eye Irritation (category 2A), H319
Skin Irritation (category 2), H315
Acute oral toxicity (category 4), H302
Acute inhalation toxicity (category 4), H332
May cause drowsiness or dizziness (category 3), H336

Precautionary Statements:
P264: Wash skin thoroughly after handling. P280: Wear protective gloves and eye protection. P303 + P361: IF ON SKIN, immediately remove all contaminated clothing and wash before reuse. P305 + P351: IF IN EYES, Remove contact lenses if present and easy to do so, rinse with water for several minutes. P337 + P313: If eye or skin irritation persists – get medical advice/attention. P403 + P223: Store in a cool, well-ventilated place. Keep container tightly closed.

Inhalation: May cause irritation to mucous membranes and upper respiratory tract. In high concentrations, vapors and aerosol mists have a narcotic effect and may cause headache, central nervous system depression, fatigue, dizziness, and nausea. Severe overexposure may cause red blood cell damage.
Chronic: Repeated or prolonged exposure may result in blood, liver, or kidney damage. See Section 11 (Toxicological Information) for additional information.

Ingestion: May cause irritation of the digestive tract, stomach pain, nausea, and vomiting.

Skin contact: May be absorbed through the skin during prolonged or repeated contact, causing irritation, dermatitis, weakness, headache and nausea.

Eye contact: Exposure to vapors or liquid may cause eye irritation.

Carcinogenic The IARC and ACGIH designate Ethylene glycol butyl ether (2-Butoxy-ethanol) and Isopropyl alcohol (2-Propanol) as category 3 – confirmed animal carcinogen with unknown relevance to humans. The ACGIH designates Ethylene glycol butyl ether (2-Butoxyethanol) as category A3– confirmed animal carcinogen with unknown relevance to humans.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Ethylene glycol butyl ether Synonym: 2-Butoxyethanol	111-76-2	12-17
Isopropyl alcohol Synonym: 2-Propanol	67-63-0	10-15

**Note:* *The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: Move exposed persons to fresh air. If the person is not breathing or breathing is irregular, provide artificial respiration or oxygen by trained personnel. Seek medical attention.

Skin contact: Quickly remove contaminated clothing and shoes. Wash affected skin with soap and water. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. If conscious and alert, rinse the mouth with water. Call a physician or poison control center immediately.

Eye contact: Check for and remove any contact lenses. Immediately consult physician after flushing eyes with tepid water for 15 minutes.

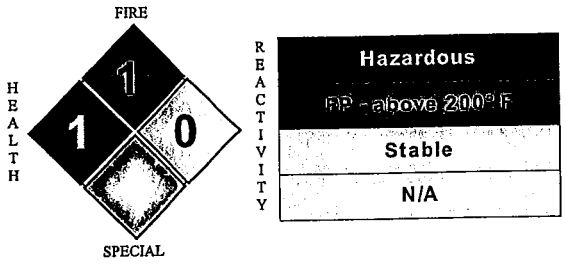
Section 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Small fires — Class B fire-extinguishing media including water spray, foam, CO_2 or dry powder. Do not use a water stream, as this will spread the fire.

Specific hazards: Fire or intense heat may cause violent rupture of product containers. Vapors may form explosive mixtures with air. Application of extinguishing media to hot surfaces requires special precautions. During emergency conditions, overexposure to decomposition products including carbon oxides may cause a health hazard. Symptoms may not be immediately apparent.

Special protective equipment for firefighters: Full protective equipment including self-contained breathing apparatus should be used. Do not allow run-off from fire-fighting to enter drains or water courses.

	NFPA rating:	HMIS rating:
Health:	1	1
Flammability:	1	1
Instability/reactivity:	0	0
Other:	N/A	H (PPE)



Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Immediately contact emergency personnel. Evacuate any potentially affected area and isolate personnel from entry. Ventilate closed spaces before entering them. Vapor can collect in lower areas.
Large Spill:	Personnel must have appropriate training, per Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120. Do not touch damaged containers or spilled material unless wearing appropriate protective equipment (Section 8).
Methods for Containment and Clean up	Shut off source if possible and if safe. Eliminate all ignition sources. Prevent entry into waterways, sewers, basements or confined areas. Advise applicable authorities if material has entered sewers or water courses.

Section 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapors. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling. Launder soiled clothing thoroughly before re-use.
Storage:	Keep all containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor. Do not store with incompatible materials. See Section 10, Stability and Reactivity.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [C]
Ethylene glycol butyl ether Synonym: 2-Butoxyethanol	111-76-2	20 ppm [A]	50 ppm [A]	25 ppm [A]
Isopropyl alcohol Synonym: 2-Propanol	67-63-0	200 ppm [A] 400 ppm [B]	400 ppm [A]	400 ppm [A] 500 ppm [B]

All exposure limits listed are 8-hour time weighted average (TWA) — except where noted otherwise.

[A] Time Weighted Average (TWA) is an average exposure over the course of an 8-hour work shift.
[B] A Short Term Exposure Limit TWA over the course of 15 minutes.
PEL — Permissible Exposure Limit is the maximum 8-hour TWA concentration of a chemical that a worker may be exposed to under Occupational Safety and Health Administration (OSHA) regulations.
[C] Federal OSHA 1989 PELs were vacated but are in use and enforced by many state OSHA plans.

Engineering measures: Local exhaust ventilation is preferable. General ventilation is acceptable if exposure to materials in this section is maintained below applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection:	When engineering controls are not sufficient to reduce exposure to levels below applicable exposure limits, seek professional advice prior to respirator selection and use. For concentrations less than 10 times the exposure limits, wear a properly fitted NIOSH/ MSHA-approved respirator with organic vapor cartridges.
Skin and body protection:	Wear impervious clothing and gloves to prevent contact. Use the manufacturer's degradation and permeation data for protective material selection.
Eye protection:	Wear safety spectacles with unperforated sideshields, or goggles.
Hygiene measures:	Avoid repeated or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse.
Other precautions:	Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Blue paste
Physical state (solid/liquid/gas):	Paste
Substance type (pure/mixture):	Mixture
Color:	Blue
Odor:	Mild odor
Molecular weight:	Not Available
pH:	Not Applicable
Boiling point/range (5-95%):	Not Available
Melting point/range:	Not Available
Decomposition temperature:	Not Available
Specific gravity:	1.41
Vapor density:	(AIR = 1) <1
Vapor pressure:	0.88 mm Hg at 68°F
Evaporation rate (Butyl acetate= 1):	0.6
Flash point, method used:	Above 200 °F; UN test N.1
Water solubility:	Slight
VOC Content:	310 grams/liter (SCAQMD Rule 1168 Test Method316A)
Auto-ignition temperature:	921°F; 494°C
Flammable limits in air — lower (%):	1.1
Flammable limits in air — upper (%):	12.7

Section 10. STABILITY AND REACTIVITY

Reactivity:	No data available
Stability:	Stable under recommended storage conditions.
Possibly hazardous reactions:	Vapors may form an explosive mixture with air
Conditions to avoid:	Heat, flames, sparks, temperature extremes, and direct sunlight.
Incompatible Materials:	Strong oxides, chlorine, acids, alkalies, peroxides.
Hazardous decomposition products:	By fire, Carbon dioxide, Carbon monoxide
Polymerization:	Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity: Excessive exposure leads to depression of the central nervous system. Causes eye irritation, moderate skin irritation.

Product information:

Name	CAS No.	Inhalation:	Dermal:	Oral:
Ethylene glycol butyl ether Synonym: 2-Butoxyethanol	111-76-2	LC_{50} (Rat): ~700 ppm, 7 hours; LC_{50} (Guinea pig): ~932 ppm, 4 hours;	LD_{50} (Rat) >2,000 mg/kg LD_{50} (Guinea pig) >2,000 mg/kg	Acute LD_{50} (Rat):1,746 mg/kg Acute LD_{50} (Guinea pig):1,414 mg/kg
Isopropyl alcohol Synonym: 2-Propanol	67-63-0	LC_{50} (Rat): 16,000 ppm, 8 hours	LD_{50} (Rabbit) 12,800 mg/kg	LD_{50} (Rat) 5,000 to 5,045 mg/kg

LC_{50} — The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours).

Chronic toxicity: The IARC and ACGIH designates Ethylene glycol butyl ether (2-Butoxy-ethanol) and Isopropyl alcohol (2-Propanol) as category 3 – confirmed animal carcinogen with unknown relevance to humans. Repeated or prolonged exposure in excess of exposure limits in Section 8 may cause damage to the lungs, liver, blood, and kidney.

Sensitization: Not known to cause sensitization in humans.

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity effects: LC_{50} Harlequinfish, Red rasbora 96-hour 4,200 mg/l.
LC_{50} Fathead minnow 96-hour 9,640 to 10,000 mg/l.
EC_{50} Water flea 48-hour 1,550 mg/l.

Persistence The estimated half-life (2-Butoxyethanol) in groundwater ranges from 14 days to 8 weeks; and in soil 7 days to 4 weeks.

Degradability: Expected to be readily biodegradable.

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: This product is not a hazardous waste as defined under RCRA 40 CFR 261. Do not incinerate a closed container. Disposal of this material must be done in accordance with federal, state and/or local regulations. The material destined for disposal must be characterized properly and may differ from the product described in this SDS if mixed with other wastes.

Section 14. TRANSPORT INFORMATION

Please refer to DOT regulation 49 CFR 172.101:

Transport information: This material is not regulated under DOT when transported via U.S. commerce routes: and IATA, and IMO via international routes

Hazardous Materials Description: (DOT and IATA):

UN/identification no.: Not Applicable
Proper shipping name: Not Applicable
Hazard class: Not Applicable
Packing group: Not Applicable
DOT reportable quantity (lbs.): Not Applicable

Section 15. REGULATORY INFORMATION

U.S. federal regulatory information:

U.S. RCRA (40 CFR 261)
This product is not a hazardous waste as defined under RCRA 40 CFR 261.

State and community right-to-know regulations:
The following component(s) of this material are identified on the regulatory lists below:

U.S. TSCA Chemical inventory Section 8(b)
OSHA — This product is determined to be hazardous as defined in the OSHA Hazard Communications Standard (29 CFR 1910.1200)

CERCLA Sections 102a/103 (40 FR 302.4):
No ingredients are listed.

Some Components of this product are listed in the following sections of **SARA**:
SARA Title III Section 302 — N/A
SARA Title III Section 304 — N/A
SARA Title III Section 313 — Ethylene glycol butyl ether (2-Butoxyethanol) 1% reporting threshold
Isopropyl alcohol (2-Propanol) 100 % reporting threshold
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

Acute health hazard:	Yes
Chronic health hazard:	Yes
Fire hazard:	No
Reactive Hazard:	No
Pressure Hazard:	No

California Proposition 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

WHMIS (Canada)
Class D-2B: Material causing other toxic effects

NOTE: *User must consult with applicable state and local agencies for special specifics, determinations or compliance obligations regarding this product.*

Section 16. OTHER INFORMATION

Standards and Certification Listings:
The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of this data. No warranty against infringement of any patent, copyright or trademark is made or implied.

WL TU (1632)
6 pgs

WHITLAM

Safety Data Sheet

SDS ID: Stock Code TU
Revision date: February 4, 2015

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **"T-U Type 555" Thread Sealing Compound**
Synonyms: None
Chemical family: Pipe Thread Hydrocarbon Mixture
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **CHEMTEL** **800-255-3924 Available 24 hours**

Section 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Harmful if swallowed. Prolonged or repeated skin contact may cause drying, cracking, or irritation. High vapor concentrations may cause drowsiness and result in irritation of the eyes, nose, and throat and central nervous system (CNS) depression.

GHS Hazard and precautionary statements

WARNING — Serious Eye Irritation (category 2A), H319
Skin Irritation (category 2), H315
Acute oral toxicity (category 4), H302
Acute inhalation toxicity (category 4), H332
May cause drowsiness or dizziness (category 3), H336

Precautionary Statements

P264: Wash skin thoroughly after handling. P280: Wear protective gloves and eye protection. P303 + P361: IF ON SKIN, immediately remove all contaminated clothing and wash before reuse. P305 + P351: IF IN EYES, Remove contact lenses if present and easy to do so, rinse with water for several minutes. P337 + P313: If eye or skin irritation persists – get medical advice/attention. P403 + P223: Store in a cool, well-ventilated place. Keep container tightly closed.

Inhalation: May cause irritation to mucous membranes and upper respiratory tract. In high concentrations, vapors and aerosol mists have a narcotic effect and may cause headache, central nervous system depression, fatigue, dizziness, and nausea. Severe overexposure may cause red blood cell damage.
Chronic: Repeated or prolonged exposure may result in blood, liver, or kidney damage. See Section 11 (Toxicological Information) for additional information.

Ingestion: May cause irritation of the digestive tract, stomach pain, nausea, and vomiting.

Skin contact: May be absorbed through the skin during prolonged or repeated contact, causing irritation, dermatitis, weakness, headache and nausea.

Eye contact: Exposure to vapors or liquid may cause eye irritation.

Carcinogenic The IARC and ACGIH designate Ethylene glycol butyl ether (2-Butoxy-ethanol) and Isopropyl alcohol (2-Propanol) as category 3 – confirmed animal carcinogen with unknown relevance to humans. The ACGIH designates Ethylene glycol butyl ether (2-Butoxyethanol) as category A3– confirmed animal carcinogen with unknown relevance to humans.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Ethylene glycol butyl ether Synonym: 2-Butoxyethanol	111-76-2	12-17
Isopropyl alcohol Synonym: 2-Propanol	67-63-0	10-15

**Note: The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: Move exposed persons to fresh air. If the person is not breathing or breathing is irregular, provide artificial respiration or oxygen by trained personnel. Seek medical attention.

Skin contact: Quickly remove contaminated clothing and shoes. Wash affected skin with soap and water. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. If conscious and alert, rinse the mouth with water. Call a physician or poison control center immediately.

Eye contact: Check for and remove any contact lenses. Immediately consult physician after flushing eyes with tepid water for 15 minutes.

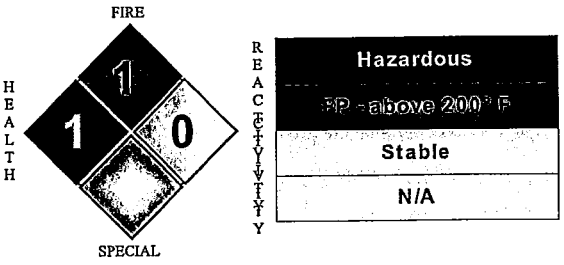
Section 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Small fires — Class B fire-extinguishing media including water spray, foam, CO_2 or dry powder. Do not use a water stream, as this will spread the fire.

Specific hazards: Fire or intense heat may cause violent rupture of product containers. Vapors may form explosive mixtures with air. Application of extinguishing media to hot surfaces requires special precautions. During emergency conditions, overexposure to decomposition products including carbon oxides may cause a health hazard. Symptoms may not be immediately apparent.

Special protective equipment for firefighters: Full protective equipment including self-contained breathing apparatus should be used. Do not allow run-off from fire-fighting to enter drains or water courses.

	NFPA rating:	HMIS rating:
Health:	1	1
Flammability:	1	1
Instability/reactivity:	0	0
Other:	N/A	H (PPE)



Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Immediately contact emergency personnel. Evacuate any potentially affected area and isolate personnel from entry. Ventilate closed spaces before entering them. Vapor can collect in lower areas.
Large Spill:	Personnel must have appropriate training, per Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120. Do not touch damaged containers or spilled material unless wearing appropriate protective equipment (Section 8).
Methods for Containment and Clean up	Shut off source if possible and if safe. Eliminate all ignition sources. Prevent entry into waterways, sewers, basements or confined areas. Advise applicable authorities if material has entered sewers or water courses.

Section 7. HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapors. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling. Launder soiled clothing thoroughly before re-use.
Storage:	Keep all containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor. Do not store with incompatible materials. See Section 10, Stability and Reactivity.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [C]
Ethylene glycol butyl ether Synonym: 2-Butoxyethanol	111-76-2	20 ppm [A]	50 ppm [A]	25 ppm [A]
Isopropyl alcohol Synonym: 2-Propanol	67-63-0	200 ppm [A] 400 ppm [B]	400 ppm [A]	400 ppm [A] 500 ppm [B]

All exposure limits listed are 8-hour time weighted average (TWA) — except where noted otherwise.

[A] Time Weighted Average (TWA) is an average exposure over the course of an 8-hour work shift.
[B] A Short Term Exposure Limit TWA over the course of 15 minutes.
PEL — Permissible Exposure Limit is the maximum 8-hour TWA concentration of a chemical that a worker may be exposed to under Occupational Safety and Health Administration (OSHA) regulations.
[C] Federal OSHA 1989 PELs were vacated but are in use and enforced by many state OSHA plans.

Engineering measures: Local exhaust ventilation is preferable. General ventilation is acceptable if exposure to materials in this section is maintained below applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection:	When engineering controls are not sufficient to reduce exposure to levels below applicable exposure limits, seek professional advice prior to respirator selection and use. For concentrations less than 10 times the exposure limits, wear a properly fitted NIOSH/ MSHA-approved respirator with organic vapor cartridges.
Skin and body protection:	Wear impervious clothing and gloves to prevent contact. Use the manufacturer's degradation and permeation data for protective material selection.
Eye protection:	Wear safety spectacles with unperforated sideshields, or goggles.
Hygiene measures:	Avoid repeated or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse.
Other precautions:	Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow paste
Physical state (solid/liquid/gas):	Paste
Substance type (pure/mixture):	Mixture
Color:	Yellow
Odor:	Mild odor
Molecular weight:	Not Available
pH:	Not Applicable
Boiling point/range (5-95%):	Not Available
Melting point/range:	Not Available
Decomposition temperature:	Not Available
Specific gravity:	1.41
Vapor density:	(AIR = 1) <1
Vapor pressure:	0.88 mm Hg at 68°F
Evaporation rate (Butyl acetate= 1):	0.6
Flash point, method used:	Above 200 °F; UN test N.1
Water solubility:	Slight
VOC Content:	310 grams/liter (SCAQMD Rule 1168 Test Method316A)
Auto-ignition temperature:	921°F; 494°C
Flammable limits in air — lower (%):	1.1
Flammable limits in air — upper (%):	12.7

Section 10. STABILITY AND REACTIVITY

Reactivity:	No data available
Stability:	Stable under recommended storage conditions.
Possibly hazardous reactions:	Vapors may form an explosive mixture with air
Conditions to avoid:	Heat, flames, sparks, temperature extremes, and direct sunlight.
Incompatible Materials:	Strong oxides, chlorine, acids, alkalies, peroxides.
Hazardous decomposition products:	By fire, Carbon dioxide, Carbon monoxide
Polymerization:	Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity: Excessive exposure leads to depression of the central nervous system. Causes eye irritation, moderate skin irritation.

Product information:

Name	CAS No.	Inhalation:	Dermal:	Oral:
Ethylene glycol butyl ether Synonym: 2-Butoxyethanol	111-76-2	LC_{50} (Rat): ~700 ppm, 7 hours; LC_{50} (Guinea pig): ~932 ppm, 4 hours;	LD_{50} (Rat) >2,000 mg/kg LD_{50} (Guinea pig) >2,000 mg/kg	Acute LD_{50} (Rat):1,746 mg/kg Acute LD_{50} (Guinea pig):1,414 mg/kg
Isopropyl alcohol Synonym: 2-Propanol	67-63-0	LC_{50} (Rat): 16,000 ppm, 8 hours	LD_{50} (Rabbit) 12,800 mg/kg	LD_{50} (Rat) 5,000 to 5,045 mg/kg

LC_{50} — The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours).

Chronic toxicity: The IARC and ACGIH designates Ethylene glycol butyl ether (2-Butoxy-ethanol) and Isopropyl alcohol (2-Propanol) as category 3 – confirmed animal carcinogen with unknown relevance to humans. Repeated or prolonged exposure in excess of exposure limits in Section 8 may cause damage to the lungs, liver, blood, and kidney.

Sensitization: Not known to cause sensitization in humans.

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity effects: LC_{50} Harlequinfish, Red rasbora 96-hour 4,200 mg/l.
LC_{50} Fathead minnow 96-hour 9,640 to 10,000 mg/l.
EC_{50} Water flea 48-hour 1,550 mg/l.

Persistence The estimated half-life (2-Butoxyethanol) in groundwater ranges from 14 days to 8 weeks; and in soil 7 days to 4 weeks.

Degradability: Expected to be readily biodegradable.

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: This product is not a hazardous waste as defined under RCRA 40 CFR 261. Do not incinerate a closed container. Disposal of this material must be done in accordance with federal, state and/or local regulations. The material destined for disposal must be characterized properly and may differ from the product described in this SDS if mixed with other wastes.

Section 14. TRANSPORT INFORMATION

Please refer to DOT regulation 49 CFR 172.101:

Transport information: This material is not regulated under DOT when transported via U.S. commerce routes: and IATA, and IMO via international routes

Hazardous Materials Description: (DOT and IATA):

UN/identification no.:	Not Applicable
Proper shipping name:	Not Applicable
Hazard class:	Not Applicable
Packing group:	Not Applicable
DOT reportable quantity (lbs.):	Not Applicable

Section 15. REGULATORY INFORMATION

U.S. federal regulatory information:

U.S. RCRA (40 CFR 261)
This product is not a hazardous waste as defined under RCRA 40 CFR 261.

State and community right-to-know regulations:
The following component(s) of this material are identified on the regulatory lists below:

U.S. TSCA Chemical inventory Section 8(b)
OSHA — This product is determined to be hazardous as defined in the OSHA Hazard Communications Standard (29 CFR 1910.1200)

CERCLA Sections 102a/103 (40 FR 302.4):
No ingredients are listed.

Some Components of this product are listed in the following sections of **SARA**:
SARA Title III Section 302 — N/A
SARA Title III Section 304 — N/A
SARA Title III Section 313 — Ethylene glycol butyl ether (2-Butoxyethanol) 1% reporting threshold
Isopropyl alcohol (2-Propanol) 100 % reporting threshold
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

Acute health hazard:	Yes
Chronic health hazard:	Yes
Fire hazard:	No
Reactive Hazard:	No
Pressure Hazard:	No

California Proposition 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

WHMIS (Canada)
Class D-2B: Material causing other toxic effects

NOTE: *User must consult with applicable state and local agencies for special specifics, determinations or compliance obligations regarding this product.*

Section 16. OTHER INFORMATION

Standards and Certification Listings:
The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of this data. No warranty against infringement of any patent, copyright or trademark is made or implied.

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6 pages

WHITLAM

Safety Data Sheet

SDS ID: Stock Code AF
Revision date: April 27, 2017

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **"Freeze Fighter" Anti-Freeze Solution**
Synonyms: None
Chemical family: Propylene Glycol mixture
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **CHEMTEL** **800-255-3924 Available 24 hours**

Section 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance: blue liquid. May cause adverse reproductive effects based upon animal studies. May cause eye and skin irritation. May cause respiratory tract irritation and digestive tract irritation

GHS Classification in accordance with 29 CFR 1910.1200
Reproductive Toxicity *(Category 1B)*, H360


DANGER

Signal Word and Hazard statements
DANGER — May damage fertility or the unborn child

Precautionary Statements
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P263 Avoid contact during pregnancy/while nursing.
P280 Use personal protective equipment as required, (see section 8)
P308+313 If exposed or concerned, get medical advice/attention.
P405 Store locked up.

Inhalation: P260 Do not breathe mist. May cause respiratory tract irritation.

Ingestion: P270 Do not eat, drink or smoke when using this product.
May cause irritation of the digestive tract.

Skin contact: P264 Wash hands thoroughly after handling. May cause irritation from prolonged or repeated contact.

Eye contact: May cause eye irritation.

Carcinogenic: No ingredients listed by the IARC, NTP, OSHA, or the ACHIH.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Sodium tetraborate decahydrate	1303-96-4	<5
Non-hazardous ingredients	Not Applicable	>95

***Note:** The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of the dangerous area.

Inhalation: Move exposed persons to fresh air. If the person is not breathing or breathing is irregular, provide artificial respiration or oxygen by trained personnel. Consult a physician.

Skin contact: Remove contaminated clothing and shoes. Wash affected skin with soap and water. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. If conscious and alert, rinse the mouth with water. Call a physician or poison control center immediately.

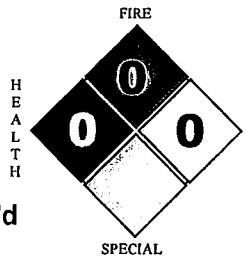
Eye contact: Check for and remove any contact lenses, if easy to do so. If eye irritation persists, consult physician after flushing eyes with tepid water for 15 minutes.

Section 5. FIREFIGHTING MEASURES

Suitable extinguishing media:	Use alcohol foam, carbon dioxide, or dry chemical.
Specific hazards:	Combustion products may include borane/boron oxides. Sodium oxides.
Advice for Firefighters:	Full protective equipment including self-contained breathing apparatus should be used. Do not allow run-off from fire-fighting to enter drains or water courses.

	NFPA rating:	HMIS rating:
Health:	**0**	**1***
Flammability:	**0**	**0**
Instability/reactivity:	**0**	**0**
Other:	**N/A**	**B (PPE)**

***Chronic health hazard: Fertility or Unborn child**



REACTIVITY

Hazardous
FP = above 200 F
Stable
N/A

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: **Large Spill:**	Avoid mist formation. Immediately contact emergency personnel. Evacuate any potentially affected area and isolate personnel from entry. Personnel must have appropriate training, per Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120. Do not touch damaged containers or spilled material unless wearing appropriate protective equipment (Section 8).
Methods for Containment and Clean up	Shut off source if possible and if safe. Prevent entry into waterways and sewers. Dyke and/or absorb with vermiculite or other suitable material. Keep absorbed material in closed containers for disposal. Advise applicable authorities if material has entered sewers or water courses.

Section 7. HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapors. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling. Launder soiled clothing thoroughly before re-use.
Storage:	Keep all containers tightly closed when not in use. Do not store with incompatible materials. See Section 10, Stability and Reactivity.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [C]
Sodium tetraborate decahydrate	1303-96-4	2 [A,D]	Not Estab.	10 [A]

All exposure limits listed are 8-hour time weighted average (TWA) — except where noted otherwise.

[A] Time Weighted Average (TWA) is an average exposure over the course of an 8-hour work shift. Airborne aerosol (mist) as measured in milligrams (mist) per cubic meter of air.
[B] A Short Term Exposure Limit TWA over the course of 15 minutes.
PEL — Permissible Exposure Limit is the maximum 8-hour TWA concentration of a chemical that a worker may be exposed to under Occupational Safety and Health Administration (OSHA) regulations.
[C] Federal OSHA 1989 PELs were vacated but are in use and enforced by many state OSHA plans.
[D] Inhalable aerosol (mist).

Engineering measures: Local exhaust ventilation is preferable. General ventilation is acceptable if exposure to materials in this section is maintained below applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: When engineering controls are not sufficient to reduce exposure to levels below applicable exposure limits, seek professional advice prior to respirator selection and use. Wear a properly fitted NIOSH/ MSHA-approved respirator.

Skin and body protection: Wear impervious clothing and nitrile rubber gloves to prevent contact. Use the manufacturer's degradation and permeation data for protective material selection.

Eye protection: Wear safety spectacles with unperforated sideshields, or goggles.

Hygiene measures: Avoid repeated or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse.

Other precautions: Not applicable

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pink liquid
Physical state (solid/liquid/gas):	Liquid
Substance type (pure/mixture):	Mixture
Color:	Pink
Odor:	Sweet odor
Molecular weight:	Not available
pH:	Not Applicable
Boiling point/range (5-95%):	Not Available
Melting point/range:	Not Available
Decomposition temperature:	Not Available
Specific gravity:	1.04
Vapor density:	(AIR = 1) 2.62
Vapor pressure:	0.22 mm Hg at 68°F
Evaporation rate (Butyl acetate= 1):	<0.1
Flash point, method used:	211°F; 99.4°C
Water solubility:	100%
VOC Content:	Not Available
Auto-ignition temperature:	Not Available
Flammable limits in air — lower (%):	2.6
Flammable limits in air — upper (%):	12.6

Section 10. STABILITY AND REACTIVITY

Reactivity:	No data available
Stability:	Stable under recommended storage conditions. This product is hygroscopic.
Possibly hazardous reactions:	No data available
Conditions to avoid:	Never use welding, thermal cutting, or spark-producing equipment near the product because the product, or its residue, can ignite or explode.
Incompatible Materials:	Oxidizing agents, reducing agents, acid chlorides, acid anhydrides, and chloroformates.
Hazardous decomposition products:	In a fire with limited oxygen: propionaldehyde, carbon monoxide.
Polymerization:	Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information:

Name	CAS No.	Inhalation:	Dermal:	Oral:
Sodium tetraborate decahydrate	1303-96-4	No data available.	LD_{50} (Rabbit) 10,000 mg/kg	Acute LD_{50} (Rat):4,500-5,000 mg/kg
Propylene glycol	57-55-6	No data available.	LD_{50} (Rabbit) 20,800 mg/kg	No data available.

LC_{50} — the concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours).

Carcinogenicity: The IARC, NTP, and OSHA: No component of this product, present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen.

Reproductive toxicity: RTCHS: VZ2275000. Sodium tetraborate decahydrate is identified as having fetotoxicity in animals. It is a presumed human reproductive toxicant. Animal feeding studies in rat, mouse, and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse, and rabbit, at high doses demonstrate developmental effects on the fetus.

Sensitization: Not known to cause sensitization in humans.

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity effects: **Sodium tetraborate decahydrate**
LC_{50} Carassius auratus (goldfish) 72-hour 178 mg/l.
EC_{50} Daphnia magna (water flea) 48-hour 1,085-1,402 mg/l.
Propylene glycol
EC_{50} Water flea 48-hour >10,000 mg/l.

Persistence: No data available.

Degradability: No data available.

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: This product is not a hazardous waste as defined under U.S. E.P.A. RCRA 40 CFR 261. Disposal of this material must be done in accordance with federal, state, provincial, and/or local regulations. P501 Dispose of contents/ container to an approved waste disposal plant. The material destined for disposal must be characterized properly and may differ from the product described in this SDS if mixed with other wastes.

Section 14. TRANSPORT INFORMATION

Please refer to DOT regulation 49 CFR 172.101:

Transport information: This material is not regulated under DOT when transported via U.S. commerce routes: and IATA, and IMO via international routes

Hazardous Materials Description: (DOT and IATA):

UN/identification no.:	Not Applicable
Proper shipping name:	Not Applicable
Hazard class:	Not Applicable
Packing group:	Not Applicable
DOT reportable quantity (lbs.):	Not Applicable

Section 15. REGULATORY INFORMATION

U.S. federal regulatory information:

U.S. RCRA (40 CFR 261)
This product is not a hazardous waste as defined under RCRA 40 CFR 261.

State and community right-to-know regulations:
The following component(s) of this material are identified on the regulatory lists below:

U.S. TSCA Chemical inventory Section 8(b)
OSHA — This product is determined to be hazardous as defined in the OSHA Hazard Communications Standard (29 CFR 1910.1200)

CERCLA Sections 102a/103 (40 FR 302.4):
No ingredients are listed.

Some Components of this product are listed in the following sections of **SARA**:
SARA Title III Section 302 — N/A
SARA Title III Section 304 — N/A
SARA Title III Section 313 — N/A
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

Acute health hazard:	No
Chronic health hazard:	Yes
Fire hazard:	No
Reactive Hazard:	No
Pressure Hazard:	No

California Proposition 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

WHMIS (Canada)
Class D-2A; D-2B: Material causing other toxic effects.
CAS# 1303-96-4 is listed on Canada's DSL List.
CAS# 1303-96-4 is listed on Canada's Ingredient Disclosure List.

NOTE: *User must consult with applicable state and local agencies for special specifics, determinations or compliance obligations regarding this product.*

Section 16. OTHER INFORMATION

Standards and Certification Listings:

The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of this data. No warranty against infringement of any patent, copyright or trademark is made or implied.

W2
6 PAGES

WHITLAM

Safety Data Sheet

SDS ID: Stock Code FT
Revision date: April 27, 2017

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **Flux-Tyte Solder Flux Paste**
Synonyms: None
Chemical family: N/A
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **330-334-2524 Available during normal business hours**

Section 2. HAZARDS IDENTIFICATION

Health Hazards: Skin corrosion/irritation, Category 1B
Serious eye damage/eye irritation, Category 1

Hazard Statement:
Causes severe skin burns and eye damage.

Danger

Precautionary Statements

Inhalation: Do not breathe dusts or mists. Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor.

Ingestion: Rinse mouth. Do not induce vomiting.

Skin Contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Petrolatum	8009-03-8	60 - 100
Zinc chloride	7646-85-7	15 - 40
Ammonium chloride	12125-02-9	1 - 5

**Note:* *The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Ingestion: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Call a physician or poison control center immediately. Remove contact lenses, if present and easy to do.

Symptoms/effects:

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Immediate medical attention/action:

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

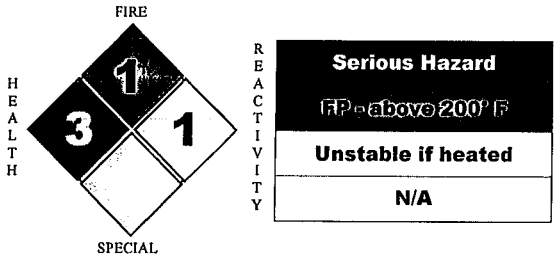
Section 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Dry chemical, alcohol foam, carbon dioxide. Do not use water jet, as this may spread burning material.

Specific hazards: Product will float and can be re-ignited at the water's surface. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Special fire-fighting procedures: Firefighters should wear proper full protective equipment and self-contained breathing apparatus. Move containers from fire area if it can be done without risk. Water spray may be ineffective. Water spray may only be useful in cooling equipment and containers exposed to heat and flame.

	NFPA rating:	HMIS rating:
Health:	3	3
Flammability:	1	1
Instability/reactivity:	1	1
Other:	N/A	N/A



Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Clean-up personnel should wear appropriate chemically protective equipment and respiratory protection.
Large Spill:	For large product users or spills involving large quantities, it is recommended that the purchaser establish a spill prevention, control and countermeasure plan. This plan should include procedures for proper storage, as well as clean-up of spills or leaks. The procedure should conform to safe practices and provide for proper recovery and/or disposal.
Methods for Containment and Clean up	Eliminate all sources of heat and flame. Ventilate area of release. If material is in paste form, scrape up into suitable containers. If material is in dust form, clean up using dustless methods (for example, HEPA vacuum). Do not use compressed air. Place any recovered material in closed, labelled containers for recycling or disposal (see below). Keep out of waterways. Notify the appropriate authorities as required.

Section 7. HANDLING AND STORAGE

Handling:	Wear appropriate chemically protective equipment. Use in a well ventilated area. Avoid inhalation and ingestion of product, and activities that generate dust or fume. Avoid contact with skin, eyes, and clothing. Keep melting temperatures as low as possible to minimize the generation of fumes. NOTE: Inadvertent contaminants to product, such as moisture, ice, snow, grease or oil can cause an explosion when charged to a molten metal bath or melting furnace. (Preheating metal will remove moisture from product). Keep away from oxidizing materials and incompatibles. Use caution when opening cap. Keep container closed when not in use. Wash thoroughly after handling.
Storage:	Store in a cool, dry, well-ventilated area away from incompatible material, heat and flame. Practice good housekeeping procedures to prevent accumulation of dust or refuse. Keep material dry.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [c]
Zinc chloride	7646-85-7	1 mg/m^3 (fume) (TWA) 2 mg/m^3 (fume) (STEL)	1 mg/m^3 (fume)	N/A
Ammonium chloride	12125-02-9	10 mg/m^3 (fume) (TWA)	10 mg/m^3 (fume) (TWA) (final rule/vacated value)	N/A

Engineering measures: An eyewash station and safety shower should be made available in the immediate working area. Other equipment, including chemically resistant apron, may be required according to workplace standards.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: For prolonged exposure or if the TLV is exceeded, wear NIOSH-approved respirators. Use in well ventilated area. Use general ventilation for prolonged exposures or if the TLV is not known.

Skin and body protection: Gloves impervious to the material must be worn. Advice should be sought from glove suppliers.

Eye protection: Safety goggles, to prevent product from entering the eyes. Safety glasses or goggles AND a full face shield are recommended around molten metal.

Hygiene measures: Avoid inhalation of vapors, fumes and dusts. Avoid contact with eyes, skin and clothing. Do not permit eating, drinking or the use of cosmetics or tobacco products while handling or processing material, or in product work areas. Practice good personal hygiene procedures. Wash hands and face thoroughly before eating, drinking, applying cosmetics or using tobacco products. Remove soiled clothing and wash it thoroughly before reuse.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brownish to white paste
Physical state (solid/liquid/gas):	Paste
Substance type (pure/mixture):	Mixture
Color:	Brownish to white
Odor:	Slight petroleum
Molecular weight:	Not Available
pH:	Not Available
Boiling point/range (5-95%):	Not Available
Melting point/range:	95°F (35°C)
Decomposition temperature:	Not Available
Specific gravity:	0.87 @ 60°F (15.6°C)
Vapor density:	Not Available
Vapor pressure:	Not Available
Evaporation rate (Butyl acetate= 1):	Not Available
Flash point, method used:	360°-430°F (182°C-221°C) (TCC)
Water solubility:	Insoluble
VOC Content:	11.7 g/l, <1%
Auto-ignition temperature:	No data
Flammable limits in air — lower (%):	No data
Flammable limits in air — upper (%):	No data

Section 10. STABILITY AND REACTIVITY

Reactivity: Stable under ambient pressure and temperature.

Stability: Stable under the recommended storage and handling conditions prescribed. May be corrosive to metals such as copper and its alloys (e.g. brass, bronze), aluminum, ferrous metals (e.g. cast iron), carbon steel and some stainless steels (e.g. 303, 310, 321, 400 series).

Possibly hazardous reactions: Contact with acids may evolve hydrogen chloride gas. Contact with strong alkalis may evolve ammonia gas.

Conditions to avoid: Avoid extreme heat and direct flame. Contact with incompatible materials.

Incompatible Materials: Strong oxidizers (e.g. chlorine, peroxides, etc.), strong acids, strong alkalis, potassium, turpentine, cyanide, sulfides, powdered zinc, halogenated compounds, lead and silver salts.

Hazardous decomposition products: Ammonia.

Polymerization: Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity: No data available.

Product information:

Name	CAS No.	Inhalation:	Oral:	Dermal:
Petrolatum	8009-03-8	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 3,600 mg/kg
Zinc chloride	7646-85-7	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 350 mg/kg	LD_{50} (Rabbit) N/A
Ammonium chloride	12125-02-9	LD_{50} (Rabbit) N/A	LD_{50} (Rabbit) 1,650 mg/kg	LD_{50} (Rabbit) N/A

LC_{50} - The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours).

Chronic toxicity: Prolonged or repeated skin contact may cause severe drying and cracking of the skin (dermatitis).

Sensitization: None known

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity effects: No data available

Persistence: No data available

Degradability: No data available

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: Review federal, state and local government requirements prior to disposal. May have value on a recycled basis. Dispose in accordance with all applicable government regulations.

Section 14. TRANSPORT INFORMATION

Proper Shipping Name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Zinc chloride)

UN No: UN3260

Primary Class(es): 8

Subsidiary Class(es): None

Packing Group: III

Other Shipping Information: Within Canada, the 'Limited Quantity Exemption' may apply for containers which hold 5 Kilograms or less of the product. Under the TDGR, refer to Section 1.17 for additional 'Limited Quantity Exemption' requirements, if shipping under this exemption.

Section 15. REGULATORY INFORMATION

U.S. federal regulatory information:

No information available

NOTE: *User must consult with applicable state and local agencies for special specifics, determinations or compliance obligations regarding this product.*

Section 16. OTHER INFORMATION

The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of this data. No warranty against infringement of any patent, copyright or trademark is made or implied.

WD 5 pages

WD-40

WD-40 COMPANY

Safety Data Sheet

1 - Identification

Product Name: WD-40 Multi-Use Product Aerosol
NOT FOR SALE IN CALIFORNIA

Product Use: Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion

Restrictions on Use: None identified

SDS Date Of Preparation: 07/20/2014

Manufacturer: WD-40 Company
Address: 1061 Cudahy Place (92110)
P.O. Box 80607
San Diego, California, USA
92138 –0607
Telephone:
Emergency only: 1-888-324-7596 (PROSAR)
Information: 1-888-324-7596
Chemical Spills: 1-800-424-9300 (Chemtrec)
1-703-527-3887 (International Calls)

2 – Hazards Identification

Hazcom 2012/GHS Classification:
Flammable Aerosol Category 1
Gas Under Pressure: Compressed Gas
Aspiration Toxicity Category 1

Note: This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission regulations which take precedence over OSHA Hazard Communication labeling. The actual container label will not include the label elements below. The labeling below applies to industrial/professional products.

Label Elements:

DANGER!
Extremely Flammable Aerosol.
Contains gas under pressure; may explode if heated.
May be fatal if swallowed and enters airways.
Prevention
Keep away from heat, sparks, open flames, hot surfaces – No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.
Response
IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
Storage
Store locked up.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place.
Disposal
Dispose of contents and container in accordance with local and national regulations.

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	US Hazcom 2012/ GHS Classification
Aliphatic Hydrocarbon	64742-47-8	45-50	Flammable Liquid Category 3

			Aspiration Toxicity Category 1
Petroleum Base Oil	64742-56-9 64742-65-0 64742-53-6 64742-54-7 64742-71-8	<25	Not Hazardous
LVP Aliphatic Hydrocarbon	64742-47-8	12-18	Aspiration Toxicity Category 1
Carbon Dioxide	124-38-9	2-3	Simple Asphyxiant Gas Under Pressure, Compressed Gas
Non-Hazardous Ingredients	Mixture	<10	Not Hazardous

Note: The exact percentages are a trade secret.

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.
Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.
Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.
Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.
Signs and Symptoms of Exposure: May cause eye and respiratory irritation. Inhalation may cause coughing, headache and dizziness. Skin contact may cause drying of the skin.
Indication of Immediate Medical Attention/Special Treatment Needed: Immediate medical attention is needed for ingestion.

5 – Fire Fighting Measures

Suitable (and unsuitable) Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.
Specific Hazards Arising from the Chemical: Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Combustion will produce oxides of carbon and hydrocarbons.
Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.
Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

Conditions for Safe Storage: Store in a cool, well-ventilated area, away from incompatible materials Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol. Store away from oxidizers.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m3 TWA, 10 mg/m3 STEL ACGIH TLV 5 mg/m3 TWA OSHA PEL
LVP Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA (OSHA/ACGIH), 30,000 ppm STEL (ACGIH)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product
Appropriate Engineering Controls: Use in a well-ventilated area.
Personal Protection:
Eye Protection: Avoid eye contact. Always spray away from your face.
Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.
Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended
Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.
Personal Protection:
Eye Protection: Safety goggles recommended where eye contact is possible.
Skin Protection: Wear chemical resistant gloves.
Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.
Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Appearance:	Light amber liquid	Flammable Limits: (Solvent Portion)	LEL: 0.6% UEL: 8%
Odor:	Mild petroleum odor	Vapor Pressure:	95-115 PSI @ 70°F
Odor Threshold:	Not established	Vapor Density:	Greater than 1 (air=1)
pH:	Not Applicable	Relative Density:	0.8 – 0.82 @ 60°F
Melting/Freezing Point	Not established	Solubilities:	Insoluble in water
Boiling Point/Range:	361 - 369°F (183 - 187°C)	Partition Coefficient; n-octanol/water:	Not established
Flash Point:	122°F (49°C) Tag Closed Cup (concentrate)	Autoignition Temperature:	Not established
Evaporation Rate:	Not established	Decomposition Temperature:	Not established
Flammability (solid, gas)	Flammable Aerosol	Viscosity:	2.79-2.96 cSt @ 100°F
VOC:	412 grams/liter (49.5%)	Pour Point:	-63°C (-81.4°F) ASTM D-97

10 – Stability and Reactivity

Reactivity: Not reactive under normal conditions
Chemical Stability: Stable

Possibility of Hazardous Reactions: May react with strong oxidizers generating heat.
Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.
Incompatible Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Symptoms of Overexposure:
Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.
Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.
Eye Contact: Contact may be irritating to eyes. May cause redness and tearing.
Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
Chronic Effects: None expected.
Carcinogen Status: None of the components are listed as a carcinogen or suspect carcinogen by IARC, NTP, ACGIH or OSHA.
Reproductive Toxicity: None of the components is considered a reproductive hazard.

Numerical Measures of Toxicity:
The oral toxicity of this product is estimated to be greater than 5,000 mg/kg and the dermal toxicity greater than 2,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

12 – Ecological Information

Ecotoxicity: No specific aquatic toxicity data is currently available, however components of this product are not expected to be harmful to aquatic organisms
Persistence and Degradability: Component are readily biodegradable.
Bioaccumulative Potential: Bioaccumulation is not expected based on an assessment of the ingredients.
Mobility in Soil: No data available
Other Adverse Effects: None known

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Do not puncture or incinerate containers, even empty. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information

DOT Surface Shipping Description:
UN1950, Aerosols, 2.1 Ltd. Qty (Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)
IMDG Shipping Description: Un1950, Aerosols, 2.1, LTD QTY
ICAO Shipping Description: UN1950, Aerosols, flammable, 2.1 NOTE: WD-40 does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

U.S. Federal Regulations:
CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many

states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
SARA TITLE III:
Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure
Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None
Section 302 Extremely Hazardous Substances (TPQ): None
EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.
VOC Regulations: This product complies with the consumer product VOC limits of the US EPA and states adopting the OTC VOC rules but does not comply with CARB.
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product does not contain chemicals regulated under California Proposition 65.
Canadian Environmental Protection Act: One of the components is listed on the NDSL. All of the other ingredients are listed on the Canadian Domestic Substances List or exempt from notification.
Canadian WHMIS Classification: Class A (Compressed gas), Class B-5 (Flammable Aerosol)
This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16 – Other Information:

HMIS Hazard Rating:
Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Reactivity – 0 (minimal hazard)

Revision Date: July 20, 2014 Supersedes: May 23, 2014

Revision Summary: Convert to Hazcom 2012. Changes in all sections.

Prepared by: Industrial Health & Safety Consultants, Inc. Shelton, CT, USA

APPROVED By: I. Kowalski Regulatory Affairs Dept.

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