ATTACHMENT C

MAINTENANCE AND REPAIR SHOP SDS

Carbon Steel & Low Alloy

SAFETY DATA SHEET

Control # 100 date: 5/29/15

SECTION: 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product Name: Carbon Steel & Low Alloy Wire

Product Identification: ER70S-2, ER70S-3, ER70S-6, ER70S-7, ER70S-G, E70C-6, E70C-G, R45, R60, R65, AWS A5.2, A5.17, A5.18, A5.23

Product Specification:

1.2 Relevant identified uses of the substance or mixture and uses advised against:

1.2.1 Relevant identified uses: For welding consumables and related products.

1.2.2 Uses advised: Reference the [7. Handling and storage]

1.3 Details of the supplier of the safety data sheet:

Supplier:
Weldcote Metals Inc.
842 Oak Grove Rd.
Kings Mountain, NC 28086

Emergency telephone number: (800) 424-9300 or (704) 739-4115

Email: info@weldcotemetals.com

SECTION: 2 HAZARDS IDENTIFICATION

2.1 Classification of the mixture:

The product is placed on the market in solid form

2.1.1 Classification in accordance with GHS-US

STOT SE 3	H336
STOT SE 3	H335
STOT RE 1	H372

2.2 Label elements:

GHS-US labeling

Hazard Pictograms (GHS-US):

GHS07 GHS09

Signal word (GHS-US): Danger

Hazard statements (GH5-US):

H335 May cause respiratory irritation

H336 May cause drowsiness or dizziness

H372 Causes damage to organs through prolonged or repeated exposure

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapours/spray

P261 Avoid breathing dust/fume/gas/mist/vapours/spray

P264 Wash thoroughly after handling

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P314 Get medical advice and attention if you feel unwell

P403+P233 Store in a well ventilated place. Keep container tightly closed.

P405 Store locked up

P501 Dispose of contents and container in accordance with local regional/national international regulations.

2.3 Other hazards: No additional information available

2.4 Unknown acute toxicity (GHS-US): No data available.

SECTION: 3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances: No data available

Full text of H-phrases: see section 16

3.2 Mixtures: The mixture contains dangerous substances:

SECTION: 4 FIRST AID MEASURES

Substance name		Product Identifier (CAS No)	% Percent	GHS-US classification
Manganese	**Mn**	**7439-96-5**	**0.5 – 2**	**Not classified**
Silicon	**Si**	**7440-21-3**	**0.1 – 1.15**	**Not classified**
Copper	**Cu**	**7440-50-8**	**0.3 – 0.5**	**Not classified**
Carbon	**C**	**7440-44-0**	**0.5 – 0.18**	**Not classified**
Titanium	**Ti**	**7440-32-6**	**0 – 0.17**	**Not classified**
Aluminum	**Al**	**7429-90-5**	**0 – 0.15**	**Not classified**

4.1 Description of first aid measures:

First-aid measures after inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and get medical attention.

First-aid measures after skin contact: Flush with water for at least 15 minutes. Seek medical attention if irritation develops or persists.

First-aid measures after eye contact: Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention if discomfort persists.

First-aid measures after ingestion: Do NOT induce vomiting. Get immediate medical attention.

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

Symptoms/injuries after inhalation: Short-term (acute) overexposure to the gases, fumes, and dusts may include irritation of the eyes, lungs, nose, and throat. Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death.
Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty in breathing, frequent coughing, or chest pain. The presence of chromium/chromate in fume can cause irritation of nasal membranes and skin. The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever, and allergic reaction. Excessive inhalation or ingestion of manganese can produce manganese poisoning. Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances, and spastic gait resembling Parkinsonism. These symptoms can become progressive and permanent if not treated. Excessive inhalation of fumes may cause "Metal Fume Fever" with Flu-like symptoms such as chills, fever, body aches, vomiting, sweating, etc.

Symptoms/injuries after skin contact: Dusts may cause irritation.
Symptoms/injuries after eye contact: Causes eye irritation.
Symptoms/injuries after ingestion: Not an anticipated route of exposure during normal product handling. May be harmful if ingested.

4.3 Indication of any immediate medical attention and special treatment needed: No data available.

SECTION: 5 FIREFIGHTING MEASURES

5.1 Extinguishing media:

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

Unsuitable extinguishing media: No data available.

5.2 Special hazards arising from the substance or mixture: Fire may produce irritating or poisonous gases.

Fire hazard: Not flammable

Explosion hazard: None known

5.3 Advice for firefighters: In the event of fire, wear self-contained breathing apparatus and full protective gear.

SECTION: 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: Wear appropriate personal protective equipment as specified in Section 8. Ensure adequate ventilation.

For emergency responders: No data available.

6.2 Environmental precautions: Avoid release into the environment. Avoid dispersal of spilled material and contact with soil, ground and surface water drains and sewers.

6.3 Methods and material for containment and cleaning up: Take up mechanically. Collect the material in labeled containers and dispose of according to local and regional authority requirements.

6.4 Reference to other sections: See Section 7 for information of safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

SECTION: 7 HANDLING AND STORAGE

7.1 Precautions and safe handling: Welding may produce dust, fumes and gases hazardous to health. Avoid breathing dust, fumes and gases. Use adequate ventilation. Keep away from sources of ignition. Avoid contact with skin, eyes and clothing. Do not eat, drink and smoke in work areas.

7.2 Conditions for safe storage, including and incompatibilities: Store in cool, dry and well-ventilated place. Keep away from incompatible materials. Keep away from heat and open flame.

7.3 Specific end use(s): For welding consumables and related products.

SECTION: 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters: Exposure limits were not established for this product

Copper	(CAS No) 7440-50-8	
USA ACGIH	ACGIH (TWA) (mg/m^3)	0.2 mg/m^3
USA OSHA	OSHA PEL (TWA) (mg/m^3)	1 mg/m^3
Manganese	(CAS No) 7439-96-5	
USA ACGIH	ACGIH (TWA) (mg/m^3)	0.1 mg/m^3
USA OSHA	OSHA PEL (Ceiling) (mg/m^3)	5 mg/m^3
Silicon	(CAS No) 744-21-3	
USA OSHA	OSHA PEL (TWA) (mg/m^3)	5 mg/m^3
Aluminum	(CAS No) 7429-90-5	
USA ACGIH	ACGIH (TWA) (mg/m^3)	1 mg/m^3
USA OSHA	OSHA PEL (TWA) (mg/m^3)	5 mg/m^3

8.2 Exposure controls:

Appropriate engineering controls: local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection: Wear welding gloves.

Eye protection: Wear helmet or face shield with filter lens of appropriate shade number. See ANSI/ASC Z49.1 Section 4.2. Provide protective screens and flash goggles, if necessary, to shield others.

Skin and body protection: Wear head and body protection, which help to prevent injury from radiation, sparks, flame and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate him/herself from work and ground. Welders should not wear short sleeve shirts or short pants.

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

SECTION: 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Physical state:	- Solid
Appearances:	- Rods or Wire
Color:	- Metallic
Odor:	- No data available
Odor threshold:	- No data available
pH:	- No data available
Relative evaporation rate (butyl acetate = l):	- No data available
Melting point:	- No data available
Freezing point:	- No data available
Initial boiling point and boiling range:	- No data available
Flash point:	- No data available
Self 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(ies)	- 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
Oxidizing properties:	- No data available
Explosive limits:	- No data available

9.2 Other information: No additional information available.

SECTION: 10 STABILITY AND REACTIVITY

10.1 Reactivity: No additional information available.

10.2 Chemical stability: The product is stable under normal conditions. When using it may produce dangerous fumes and gases.

10.3 Possibility of hazardous reactions: Will not occur.

10.4 Conditions to avoid: None

10.5 Incompatible materials: None

10.6 Hazardous decomposition products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and welding consumables used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coating on the metal being welded (i.e. paint, painting, galvanizing), the number of welders, the volume of the work area, the quality and the amount of ventilation, the position of the welders head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from the cleaning and degreasing activities).

When an electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Fume and gas decomposition, and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration. Also, new compounds not in the electrodes may form. Decomposition products of normal operation include those originating from the volatilization, reaction or oxidation of the materials shown in Section 3, plus those from the base metal coating, etc., as noted above. Reasonable expected fume constituents of this product would include: Complex oxides of iron, manganese, silicon, chromium, nickel, columbium, molybdenum, copper, carbon dioxide, carbon monoxide, ozone and nitrogen Oxides. Some products will also contain antimony, barium, molybdenum, aluminum, columbium, magnesium, strontium, tungsten, and or zirconium. Fume limit for chromium, nickel and or manganese may be reached before limit of 5 mg/m3 of general welding fumes is reached. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS Fl.!, Fl.3 and Fl.5, available from the American Welding Society, 550 N.W. Lejeune Road, Miami, FL 33126

SECTION: 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Acute toxicity: Harmful if swallowed

Substance name	CAS number	LD5O oral rat (mg/kg)	ATE (oral) (mg/kg)	Comments
Manganese	7439-96-5		9000000.000 mg/kg	
Silicon	7440-21-3		3160.000 mg/kg	
Carbon	7440-21-3	>10000 mg/kg		

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): May cause drowsiness. May cause respiratory irritation.

Specific target organ toxicity (repeated exposure): Causes damage to organs through prolonged or repeated exposure

Aspiration hazard: Not classified

SECTION: 12 ECOLOGICAL INFORMATION

12.1 Toxicity:

Ecology - general: No additional information available.

Copper	(CAS No) 7440-50-8
LC50 fishes 1	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 - 0.0535 mg/l (Exposure time: 72 h - Species: Pseidokirchneriella subcapitata [static])
LC50 fish 2	< 0.3 mg/l (Exposure time: 96 h - species: Pimephales promelas ([static])
EC50 other aquatic organisms 2	0.031 - 0.054 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

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: Dispose of in accordance with local and national regulations.

Waste disposal recommendations: Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION: 14 TRANSPORT INFORMATION

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 UN Number: Not a dangerous good in sense of transport regulations

14.2 UN proper shipping name: Not applicable

SECTION: 15 REGULATORY INFORMATION

15.1 US Federal Regulations:

Copper (CAS No) 7440-50-8
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
SARA Section 313 - Emission Reporting 1.0%
Manganese (CAS No) 7439-96-5
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
SARA Section 313 - Emission Reporting 1.0%
Silicon (CAS No) 7440-21-3
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Titanium (CAS No) 7440-32-6
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Carbon (CAS No) 7440-44-0
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Aluminum (CAS No) 7429-90-5
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
SARA Section 313 - Emission Reporting 1.0% (dust or fume only)

15.2 US State Regulations:

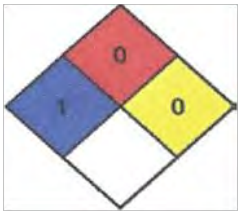
Copper	(CAS No)	7440-50-8
U.S. - Massachusetts - Right To Know List		
U.S. - Minnesota - Hazardous Substance list		
U.S. - New Jersey - Right to Know Hazardous Substance List		
U.S. - Pennsylvania - RTK (Right to Know) List		
Manganese	(CAS No)	7439-96-5
U.S. - Massachusetts - Right To Know List		
U.S. - Minnesota - Hazardous Substance List		
U.S. - New Jersey - Right to Know Hazardous Substance List		
U.S. - Pennsylvania - RTK (Right to Know) List		
Silicon	(CAS No)	7440-21-3
U.S. - Massachusetts - Right To Know List		
U.S. - Minnesota - Hazardous Substance List		
U.S. - New Jersey - Right to Know Hazardous Substance List		
U.S. - Pennsylvania - RTK (Right to Know) List		
Titanium	(CAS No)	7440-32-6
U.S. - New Jersey - Right to Know Hazardous Substance list		
Aluminum	(CAS No)	7429-90-5
U.S. - Massachusetts - Right To Know List		
U.S. - Minnesota - Hazardous Substance List		
U.S. - New Jersey - Right to Know Hazardous Substance List		
U.S. - Pennsylvania - RTK (Right to Know) List		

SECTION: 16 OTHER INFORMATION

Full text of H-phrases:

STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1	
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3,	Narcosis
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3,	Respiratory tract irritation
H335	May cause respiratory irritation	
H336	May cause drowsiness or dizziness	
H372	Causes damage to organs through prolonged or repeated exposure	

NFPA health hazard:	1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard:	0 - Materials that will not burn.
NFPA reactivity:	0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health:	2 - Moderate Hazard - Temporary or minor injury may occur
Flammability:	0 - Minimal Hazard
Physical:	0 - Minimal Hazard

We believe that the information contained herein is believed to be true and accurate as of the date of this SOS. All statements or suggestions are made without any warranty, expressed or implied, regarding the accuracy of the information, the hazard connected with the use of this material or the results to be obtained for use thereof. As the condition or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material. It is the user's obligation to determine the conditions of safe use of these products.
All chemical products can in fact present unknown risks to health, safety and / or the environment, even in relation to the different operating conditions, and they must therefore be used with care. For this reason we cannot guarantee that the risk described in this form are the only foreseeable risks. The user must therefore satisfy himself as to the particular conditions under which it is intended to be use in. Moreover, it must be noted that the user is obliged to comply with all the legislative, administrative and regulatory provisions regarding the product and its use in terms of occupational hygiene and safety, and environmental protection, apart from the information given in the form, given purely as guidance.
Technical Department

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Lincoln® 6011
Product Size: 1/8" (3.2 mm)

Other means of identification
SDS number: 200000000657

Recommended use and restriction on use
Recommended use: SMAW (Shielded Metal Arc Welding)
Restrictions on use: Not known. Read this SDS before using this product.

Manufacturer/Importer/Supplier/Distributor Information

Company Name:	The Lincoln Electric Company
Address:	22801 Saint Clair Avenue Cleveland, Ohio 44117
Telephone:	+1 (216) 481-8100
Contact Person:	Safety Data Sheet Questions: www.lincolnelectric.com/sds Arc Welding Safety Information: www.lincolnelectric.com/safety
Company Name:	The Lincoln Electric Company of Canada LP
Address:	179 Wicksteed Avenue Toronto, Ontario M4G 2B9
Telephone:	+1 (416) 421-2600
Contact Person:	Safety Data Sheet Questions: www.lincolnelectric.com/sds Arc Welding Safety Information: www.lincolnelectric.com/safety

Emergency telephone number:

USA/Canada/Mexico	+1 (888) 609-1762
Americas/Europe	+1 (216) 383-8962
Asia Pacific	+1 (216) 383-8966
Middle East/Africa	+1 (216) 383-8969

3E Company Access Code: 333988

2. HAZARDS IDENTIFICATION

Classified according to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), The United States Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200), Canada's Hazardous Product Regulations and Mexico's Harmonized System for the Identification and Communication of Hazards and Risks from Hazardous Chemicals in the Workplace.

Hazard Classification — Not classified as hazardous according to applicable GHS hazard classification criteria.

Label Elements

Hazard Symbol:	No symbol
Signal Word:	No signal word.
Hazard Statement:	Not applicable
Precautionary Statements:	Not applicable

Other hazards which do not result in GHS classification:

Electrical Shock can kill. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, or if there is a high risk of unavoidable or accidental contact with work piece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.

Arc rays can injure eyes and burn skin. Welding arc and sparks can ignite combustibles and flammable materials. Overexposure to welding fumes and gases can be hazardous. Read and understand the manufacturer's instructions, Safety Data Sheets and the precautionary labels before using this product. Refer to Section 8.

Substance(s) formed under the conditions of use:

The welding fume produced from this welding electrode may contain the following constituent(s) and/or their complex metallic oxides as well as solid particles or other constituents from the consumables, base metal, or base metal coating not listed below:

Chemical Identity	CAS-No.
Carbon dioxide	124-38-9
Carbon monoxide	630-08-0
Nitrogen dioxide	10102-44-0
Ozone	10028-15-6
Manganese	7439-96-5

3. COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Ingredients
Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Iron	7439-89-6	50 - <100%
Cellulose, pulp	65996-61-4	1 - <5%
Potassium silicate	1312-76-1	1 - <5%
Titanium dioxide	13463-67-7	1 - <5%
Manganese	7439-96-5	0.1 - <1%
Iron oxide	1309-37-1	0.1 - <1%
Limestone	1317-65-3	0.1 - <1%
Sodium silicate	1344-09-8	0.1 - <1%
Potassium carbonate	584-08-7	0.1 - <1%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition Comments:

The term "Hazardous Ingredients" should be interpreted as a term defined in Hazard Communication standards and does not necessarily imply the existence of a welding hazard. The product may contain additional non-hazardous ingredients or may form additional compounds under the condition of use. Refer to Sections 2 and 8 for more information.

4. FIRST AID MEASURES

Ingestion:

Unlikely due to form of product, except for granular materials. Avoid hand, clothing, food, and drink contact with metal fume or powder which can cause ingestion of particulate during hand to mouth activities such as drinking, eating, smoking, etc. If ingested, do not induce vomiting. Contact

	a poison control center. Unless the poison control center advises otherwise, wash out mouth thoroughly with water. If symptoms develop, seek medical attention at once.
Inhalation:	Move to fresh air if breathing is difficult. If breathing has stopped, perform artificial respiration and obtain medical assistance at once.
Skin Contact:	Remove contaminated clothing and wash the skin thoroughly with soap and water. For reddened or blistered skin, or thermal burns, obtain medical assistance at once.
Eye contact:	Dust or fume from this product should be flushed from the eyes with copious amounts of clean, tepid water until transported to an emergency medical facility. Do not allow victim to rub or keep eyes tightly closed. Obtain medical assistance at once. Arc rays can injure eyes. If exposed to arc rays, move victim to dark room, remove contact lenses as necessary for treatment, cover eyes with a padded dressing and rest. Obtain medical assistance if symptoms persist.

Most important symptoms/effects, acute and delayed

Symptoms:	Short-term (acute) overexposure to fumes and gases from welding and allied processes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Long-term (chronic) overexposure to fumes and gases from welding and allied processes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects. Refer to Section 11 for more information.
Hazards:	Welding and allied process hazards are complex and may include physical and health hazards such as but not limited to electric shock, physical strains, radiation burns (eye flash), thermal burns due to hot metal or spatter and potential health effects of overexposure to welding fume or dust. Refer to Section 11 for more information.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

General Fire Hazards:	As shipped, this product is nonflammable. However, welding arc and sparks can ignite combustibles and flammable products. Read and understand American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" and National Fire Protection Association NFPA 51B, "Standard for Fire Prevention During Welding, Cutting and Other Hot Work" before using this product.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	As shipped, the product will not burn. In case of fire in the surroundings: use appropriate extinguishing agent.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical:	Welding arc and sparks can ignite combustibles and flammable products.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Use standard firefighting procedures and consider the hazards of other involved materials.
Special protective equipment for fire-fighters:	Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace. 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:	If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.
Methods and material for containment and cleaning up:	Absorb with sand or other inert absorbent. Stop the flow of material, if this is without risk. Clean up spills immediately, observing precautions in the personal protective equipment in Section 8. Avoid generating dust. Prevent product from entering any drains, sewers or water sources. Refer to Section 13 for proper disposal.
Environmental Precautions:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water sources or sewer. Environmental manager must be informed of all major spillages.

7. HANDLING AND STORAGE

Precautions for safe handling:	Prevent formation of dust. Provide appropriate exhaust ventilation at places were dust is formed. Read and understand the manufacturer's instruction and the precautionary label on the product. Refer to Lincoln Safety Publications at www.lincolnelectric.com/safety. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" published by the American Welding Society, http://pubs.aws.org and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, www.gpo.gov.
Conditions for safe storage, including any incompatibilities:	Store in closed original container in a dry place. Store in accordance with local/regional/national regulations. Store away from incompatible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits: US

Chemical Identity	type	Exposure Limit Values	Source
Titanium dioxide	TWA	10 mg/m3	US. ACGIH Threshold Limit Values (12 2010)
Titanium dioxide - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Manganese - Fume. - as Mn	Ceiling	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	REL	1 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	STEL	3 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Manganese - Inhalable fraction. - as Mn	TWA	0.1 mg/m3	US. ACGIH Threshold Limit Values (03 2014)
Manganese - Respirable fraction. - as Mn	TWA	0.02 mg/m3	US. ACGIH Threshold Limit Values (03 2014)
Iron oxide - Respirable	TWA	5 mg/m3	US. ACGIH Threshold Limit Values (12

fraction.			2010)
Iron oxide - Fume.	PEL	10 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Iron oxide - Dust and fume. - as Fe	REL	5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Limestone - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Limestone - Respirable fraction.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Limestone - Respirable.	REL	5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Limestone - Total	REL	10 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)

Occupational Exposure Limits: CANADA

Chemical Identity	type	Exposure Limit Values	Source
Titanium dioxide	TWA	10 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
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	TWA	10 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	TWA	10 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	8 HR ACL	10 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	20 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Titanium dioxide - Total dust.	TWA	10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Manganese - as Mn	TWA	0.2 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	0.2 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	8 HR ACL	0.2 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	0.6 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Manganese - Fume. - as Mn	TWA	1 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Manganese - Dust. - as Mn	TWA	5 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Manganese - Fume. - as Mn	STEL	3 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)

Manganese - Respirable fraction. - as Mn	TWA	0.02 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
Manganese - Inhalable fraction. - as Mn	TWA	0.1 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
Manganese - as Mn	TWA	0.2 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (06 2015)
Iron oxide - Respirable.	TWA	5 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
Iron oxide - 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)
Iron oxide - Dust. - as Fe	TWA	5 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Iron oxide - Fume. - as Fe	STEL	10 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Iron oxide - 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)
Iron oxide - Fume. - as Fe	TWA	5 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Iron oxide - Respirable fraction.	TWA	5 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	TWA	5 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Iron oxide	8 HR ACL	10 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	20 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Iron oxide - Dust and fume. - as Fe	15 MIN ACL	10 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	8 HR ACL	5 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Iron oxide - Total dust.	TWA	10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Iron oxide - Dust and fume. - as Fe	TWA	5 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Limestone	TWA	10 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
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)
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)
Limestone	8 HR ACL	10 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	20 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Limestone - Total dust.	TWA	10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)

Occupational Exposure Limits: MEXICO

Chemical Identity	type	Exposure Limit Values	Source
Titanium dioxide - as Ti	CTT	20 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CPT	10 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Manganese - as Mn	CPT	0.2 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Manganese - Fume. - as Mn	CPT	1 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CTT	3 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Iron oxide - as Fe	CTT	10 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CPT	5 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Limestone	CTT	20 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CPT	10 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)

Additional exposure limits under the conditions of use: US

Chemical Identity	type	Exposure Limit Values		Source
Carbon dioxide	TWA	5,000 ppm		US. ACGIH Threshold Limit Values (12 2010)
	STEL	30,000 ppm		US. ACGIH Threshold Limit Values (12 2010)
	PEL	5,000 ppm	9,000 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	STEL	30,000 ppm	54,000 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	REL	5,000 ppm	9,000 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Carbon monoxide	TWA	25 ppm		US. ACGIH Threshold Limit Values (12 2010)
	PEL	50 ppm	55 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	REL	35 ppm	40 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	Ceil_Time	200 ppm	229 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Nitrogen dioxide	TWA	0.2 ppm		US. ACGIH Threshold Limit Values (02 2012)
	Ceiling	5 ppm	9 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	STEL	1 ppm	1.8 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Ozone	PEL	0.1 ppm	0.2 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02

				2006)
	Ceil_Time	0.1 ppm	0.2 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	0.05 ppm		US. ACGIH Threshold Limit Values (03 2014)
	TWA	0.20 ppm		US. ACGIH Threshold Limit Values (03 2014)
	TWA	0.10 ppm		US. ACGIH Threshold Limit Values (03 2014)
	TWA	0.08 ppm		US. ACGIH Threshold Limit Values (03 2014)
Manganese - Fume. - as Mn	Ceiling		5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	REL		1 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	STEL		3 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Manganese - Inhalable fraction. - as Mn	TWA		0.1 mg/m3	US. ACGIH Threshold Limit Values (03 2014)
Manganese - Respirable fraction. - as Mn	TWA		0.02 mg/m3	US. ACGIH Threshold Limit Values (03 2014)

Additional exposure limits under the conditions of use: CANADA

Chemical Identity	type	Exposure Limit Values		Source
Carbon dioxide	STEL	30,000 ppm	54,000 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	5,000 ppm	9,000 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	5,000 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	STEL	15,000 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	5,000 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	STEL	30,000 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	STEL	30,000 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	TWA	5,000 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	8 HR ACL	5,000 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	30,000 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	TWA	5,000 ppm	9,000 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
	STEL	30,000 ppm	54,000 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Carbon monoxide	TWA	25 ppm	29 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	25 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for

				Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	STEL	100 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	25 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	TWA	25 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (07 2010)
	8 HR ACL	25 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	190 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	TWA	35 ppm	40 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
	STEL	200 ppm	230 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Nitrogen dioxide	STEL	5 ppm	9.4 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	3 ppm	5.6 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	CEILING	1 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.2 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2012)
	STEL	5 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	TWA	3 ppm		Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	8 HR ACL	3 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	5 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	TWA	3 ppm	5.6 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Ozone	STEL	0.3 ppm	0.6 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	0.1 ppm	0.2 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	0.05 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.1 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.08 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for

				Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.2 ppm		Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	TWA	0.1 ppm	0.2 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (07 2010)
	STEL	0.3 ppm	0.6 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (07 2010)
	15 MIN ACL	0.15 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	8 HR ACL	0.05 ppm		Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	CEILING	0.1 ppm	0.2 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
	TWA	0.20 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
	TWA	0.05 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
	TWA	0.08 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
	TWA	0.10 ppm		Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
Manganese - as Mn	TWA		0.2 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA		0.2 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	8 HR ACL		0.2 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL		0.6 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Manganese - Fume. - as Mn	TWA		1 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Manganese - Dust. - as Mn	TWA		5 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Manganese - Fume. - as Mn	STEL		3 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Manganese - Respirable fraction. - as Mn	TWA		0.02 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
Manganese - Inhalable fraction. - as Mn	TWA		0.1 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2014)
Manganese - as Mn	TWA		0.2 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (06 2015)

Additional exposure limits under the conditions of use: MEXICO

Chemical Identity	type	Exposure Limit Values		Source
Carbon dioxide	CPT	5,000 ppm	9,000 mg/m3	Mexico. Occupational Exposure Limit

				Values (03 2000)
	CTT	15,000 ppm	27,000 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Carbon monoxide	CTT	400 ppm	400 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CPT	50 ppm	55 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Nitrogen dioxide	CTT	5 ppm	10 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CPT	3 ppm	6 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Ozone	P	0.1 ppm	0.2 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Manganese - as Mn	CPT		0.2 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
Manganese - Fume. - as Mn	CPT		1 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)
	CTT		3 mg/m3	Mexico. Occupational Exposure Limit Values (03 2000)

Appropriate Engineering Controls

Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. **Keep exposure as low as possible.**

Individual protection measures, such as personal protective equipment

General information:

Exposure Guidelines: Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs® and BEIs® states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures. See Section 10 for information on potential fume constituents of health interest. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists.

Maximum Fume Exposure Guideline™ (MFEG)™ for this product (based on content of Manganese) is 0.7 mg/m3. This exposure guideline is calculated using the most conservative value of the ACGIH TLV or OSHA PEL for the stated substance.

Eye/face protection:

Wear helmet or use face shield with filter lens shade number 12 or darker for open arc processes – or follow the recommendations as specified in ANSI Z49.1, Section 4, based on your process and settings. No specific lens shade recommendation for submerged arc or electroslag processes. Shield others by providing appropriate screens and flash goggles.

Skin Protection

Hand Protection:

Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

Other:

Protective Clothing: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Wear dry gloves free of holes or split seams. Train the welder not to permit electrically live parts or electrodes to contact skin . . . or clothing or gloves if they are wet. Insulate yourself from the work piece and ground using dry plywood, rubber mats or other dry insulation.

Respiratory Protection:

Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. An approved respirator should be used unless exposure assessments are

	below applicable exposure limits.
Hygiene measures:	Do not eat, drink or smoke when using the product. 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. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, www.aws.org.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Steel rod with extruded flux coating.
Physical state:	Solid
Form:	Solid
Color:	No data available.
Odor:	No data available.
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:	No data available.
Flammability (solid, gas):	No data available.
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:	No data available.
Density:	No data available.
Relative density:	No data available.
Solubility(ies)	
Solubility in water:	No data available.
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:	The product is non-reactive under normal conditions of use, storage and transport.
Chemical Stability:	Material is stable under normal conditions.

Possibility of hazardous reactions:	None under normal conditions.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	Strong acids. Strong oxidizing substances. Strong bases.
Hazardous Decomposition Products:	Fumes and gases from welding and allied processes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.) When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above. Reasonably expected fume constituents produced during arc welding include the oxides of iron, manganese and other metals present in the welding consumable or base metal. Hexavalent chromium compounds may be in the welding fume of consumables or base metals which contain chromium. Gaseous and particulate fluoride may be in the welding fume of consumables which contain fluoride. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation:	Potential chronic health hazards related to the use of welding consumables are most applicable to the inhalation route of exposure. Refer to Inhalation statements in Section 11.
Skin Contact:	Arc rays can burn skin. Skin cancer has been reported.
Eye contact:	Arc rays can injure eyes.
Ingestion:	Health injuries from ingestion are not known or expected under normal use.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	Short-term (acute) overexposure to fumes and gases from welding and allied processes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Long-term (chronic) overexposure to fumes and gases from welding and allied processes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product:	Not classified
Specified substance(s):	

Iron	LD 50 (Rat): 98.6 g/kg
Limestone	LD 50 (Rat): 6,450 mg/kg
Sodium silicate	LD 50 (Rat): 1.1 g/kg
Potassium carbonate	LD 50 (Rat): 1,900 mg/kg

Dermal
Product: Not classified
Specified substance(s):
Potassium carbonate LD 50LD 50 (Rabbit): > 2,000 mg/kg

Inhalation
Product: Not classified
Specified substance(s):
Potassium carbonate LC 50 (Rat, 4.5 h): > 4.96 mg/l

Repeated dose toxicity
Product: Not classified

Skin Corrosion/Irritation
Product: Not classified

Serious Eye Damage/Eye Irritation
Product: Not classified

Respiratory or Skin Sensitization
Product: Not classified

Carcinogenicity
Product: Arc rays: Skin cancer has been reported.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
Titanium dioxide Overall evaluation: 2B. Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ Cell Mutagenicity
In vitro
Product: Not classified

In vivo
Product: Not classified

Reproductive toxicity
Product: Not classified

Specific Target Organ Toxicity - Single Exposure
Product: Not classified

Specific Target Organ Toxicity - Repeated Exposure
Product: Not classified

Aspiration Hazard
Product: Not classified

Other effects: Organic polymers may be used in the manufacture of various welding consumables. Overexposure to their decomposition byproducts may result in a condition known as polymer fume fever. Polymer fume fever usually occurs within 4 to 8 hours of exposure with the presentation of flu like symptoms, including mild pulmonary irritation with or without an increase in body temperature. Signs of exposure can include an increase in white blood cell count. Resolution of symptoms typically occurs quickly, usually not lasting longer than 48 hours.

Symptoms related to the physical, chemical and toxicological characteristics under the condition of use

Inhalation:
Specified substance(s):

Manganese	Overexposure to manganese fumes may affect the brain and central nervous system, resulting in poor coordination, difficulty speaking, and arm or leg tremor. This condition can be irreversible.

Additional toxicological Information under the conditions of use:

Acute toxicity
Inhalation
Specified substance(s):

Carbon dioxide	LC Lo (Human, 5 min): 90000 ppm
Carbon monoxide	LC 50 (Rat, 4 h): 1,300 mg/l
Nitrogen dioxide	LC 50 (Rat, 4 h): 88 ppm
Ozone	LC Lo (Human, 30 min): 50 ppm

Other effects:
Specified substance(s):

Carbon dioxide	asphyxia
Carbon monoxide	Carboxyhemoglobinemia
Nitrogen dioxide	Lower Respiratory Tract irritation

12. ECOLOGICAL INFORMATION

Ecotoxicity
Acute hazards to the aquatic environment:
Fish
Product: Not classified
Specified substance(s):

Sodium silicate	LC 50 (Western mosquitofish (Gambusia affinis), 96 h): 1,800 mg/l
Potassium carbonate	LC 50 (Fathead minnow (Pimephales promelas), 96 h): < 750 mg/l

Aquatic Invertebrates
Product: Not classified
Specified substance(s):

Manganese	EC 50 (Water flea (Daphnia magna), 48 h): 40 mg/l
Sodium silicate	EC 50 (Water flea (Ceriodaphnia dubia), 48 h): 22.94 - 49.01 mg/l
Potassium carbonate	LC 50 (Water flea (Ceriodaphnia dubia), 48 h): 580 - 670 mg/l

Chronic hazards to the aquatic environment:
Fish
Product: Not classified

Aquatic Invertebrates
Product: Not classified

Toxicity to Aquatic Plants
Product: Not classified

Persistence and Degradability
Biodegradation
Product: No data available.

Bioaccumulative Potential
Bioconcentration Factor (BCF)
Product: No data available.

Mobility in Soil: No data available.

13. DISPOSAL CONSIDERATIONS

General information: The generation of waste should be avoided or minimized whenever possible. When practical, recycle in an environmentally acceptable, regulatory compliant manner. Dispose of non-recyclable products in accordance with all applicable Federal, State, Provincial, and Local requirements.

Disposal instructions: Dispose of this material and its container to hazardous or special waste collection point.

Contaminated Packaging: 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.

14. TRANSPORT INFORMATION

DOT
UN Number:
UN Proper Shipping Name: NOT DG REGULATED
Transport Hazard Class(es)
Class: NR
Label(s): –
Packing Group: –
Marine Pollutant: No

IMDG
UN Number:
UN Proper Shipping Name: NOT DG REGULATED
Transport Hazard Class(es)
Class: NR
Label(s): –
EmS No.:
Packing Group: –
Marine Pollutant: No

IATA
UN Number:
Proper Shipping Name: NOT DG REGULATED
Transport Hazard Class(es):
Class: NR
Label(s): –
Packing Group: –
Marine Pollutant: No
Cargo aircraft only: Allowed.

TDG
UN Number:

UN Proper Shipping Name:	NOT DG REGULATED
Transport Hazard Class(es)	
Class:	NR
Label(s):	–
Packing Group:	–
Marine Pollutant:	No

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
Manganese	Included in the regulation but with no data values. See regulation for further details.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Not listed.

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

Chemical Identity	Reportable quantity
Manganese	Included in the regulation but with no data values. See regulation for further details.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity

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):

None present or none present in regulated quantities.

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.

Titanium dioxide	Carcinogenic.

WARNING: This product contains or produces a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code Section 25249.5 et seq.)

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

Titanium dioxide

US. Massachusetts RTK - Substance List
No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances
Chemical Identity
Titanium dioxide

US. Rhode Island RTK
No ingredient regulated by RI Right-to-Know Law present.

Canada Federal Regulations
List of Toxic Substances (CEPA, Schedule 1)
Not Regulated

Export Control List (CEPA 1999, Schedule 3)
Not Regulated

National Pollutant Release Inventory (NPRI)
Canada. National Pollutant Release Inventory (NPRI) Substances, Part 5, VOCs with Additional Reporting Requirements

NPRI PT5	Not Regulated

Canada. Canadian Environmental Protection Act (CEPA). National Pollutant Release Inventory (NPRI) (Parts 1-4)

NPRI	Not Regulated

Greenhouse Gases
Not Regulated

Controlled Drugs and Substances Act

CA CDSI	Not Regulated
CA CDSII	Not Regulated
CA CDSIII	Not Regulated
CA CDSIV	Not Regulated
CA CDSV	Not Regulated
CA CDSVII	Not Regulated
CA CDSVIII	Not Regulated

Precursor Control Regulations
Not Regulated

Mexico. Substances subject to reporting for the pollutant release and transfer registry (PRTR): not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	One or more components are not listed or are exempt from listing.
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	One or more components are not listed or are exempt from listing.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	One or more components are not listed or are exempt from listing.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	One or more components are not listed or are exempt from listing.

Japan Pharmacopoeia Listing:	One or more components are not listed or are exempt from listing.
Mexico INSQ:	One or more components are not listed or are exempt from listing.
Ontario Inventory:	One or more components are not listed or are exempt from listing.
Taiwan Chemical Substance Inventory:	One or more components are not listed or are exempt from listing.

16. OTHER INFORMATION

Definitions:

The Maximum Fume Exposure Guideline™ (MFEG)™ is a guideline limit for total welding fume exposure for a specific consumable product which may be used by employers to manage worker exposure to welding fume where that product is used. The MFEG™ is an estimate of the level of total welding fume exposure for a given product above which the exposure limit for one of the fume constituents may be exceeded. The exposure limits referenced are the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV®) and the U.S. OSHA Permissible Exposure Limit (PEL) whichever limit is lower. The MFEG™ never exceeds 5 mg/m³ which is the maximum recommended exposure limit for total welding fume. **The MFEG™ is intended to serve as a general guideline to assist in the management of workplace exposure to welding fume and does not replace the regular measurement and analysis of worker exposure to individual welding fume constituents.**

Revision Date:	12/06/2016
Further Information:	Additional information is available by request.
Disclaimer:	The Lincoln Electric Company urges each end user and recipient of this SDS to study it carefully. See also www.lincolnelectric.com/safety. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product. This information is believed to be accurate as of the revision date shown above. However, no warranty, expressed or implied, is given. Because the conditions or methods of use are beyond Lincoln Electric's control, we assume no liability resulting from the use of this product. Regulatory requirements are subject to change and may differ between various locations. Compliance with all applicable Federal, State, Provincial, and local laws and regulations remain the responsibility of the user.

Material Safety Data Sheet

LOCTITE®

Henkel

Revision Number: 003.1

Issue date: 10/12/2009

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 567™ PST® PIPE SEALANT WITH PTFE THREAD SEALANT PART NO. 56747

IDH number: 135491

Product type: Anaerobic Sealant

Item number: 56747

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: 860.571.5100
Emergency telephone: 860.571.5100
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state: Paste
Color: White
Odor: Mild

HEALTH: *2
FLAMMABILITY: 1
PHYSICAL HAZARD: 1
Personal Protection: See MSDS Section 8

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause skin irritation. May cause allergic skin reaction.
Eye contact: Contact with eyes will cause irritation.
Ingestion: Not expected to be harmful by ingestion.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

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

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Bisphenol A fumarate resin	39382-25-7	30 - 60
Polyglycol dimethacrylate	25852-47-5	10 - 30
Polyglycol laurate	9004-81-3	10 - 30
Polyethylene glycol monococoate	61791-29-5	10 - 30
Titanium dioxide	13463-67-7	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Saccharin	81-07-2	1 - 5
Epichlorohydrin-4,4'-isopropylidene diphenol resin	25068-38-6	1 - 5
Ethylene glycol	107-21-1	0.1 - 1

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.
Skin contact:	Remove contaminated clothing and footwear. Wash with soap and water. Wash clothing before reuse. If symptoms develop and persist, get medical attention.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point:	> 93.3 °C (> 199.94 °F)
Autoignition temperature:	Not available
Flammable/Explosive limits - lower:	Not available
Flammable/Explosive limits - upper:	Not available
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Toxic fluorine compounds. Irritating organic vapours.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.
Storage:	For safe storage, store at or below 38 °C (100.4 °F) Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

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
Bisphenol A fumarate resin	None	None	None	None
Polyglycol dimethacrylate	None	None	None	None
Polyglycol laurate	None	None	None	None
Polyethylene glycol monococoate	None	None	None	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 TWA Total dust.	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Saccharin	None	None	None	None
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	None	None	None
Ethylene glycol	100 mg/m3 Ceiling Aerosol.	None	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Neoprene, Butyl-rubber, or nitrile-rubber gloves. Use impermeable gloves and protective clothing as necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Paste
Color: White
Odor: Mild
Odor threshold: Not available
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 300 °F (> 148.9 °C) none
Melting point/ range: Not available
Specific gravity: 1.14
Vapor density: Not available
Flash point: > 93.3 °C (> 199.94 °F)
Flammable/Explosive limits - lower: Not available
Flammable/Explosive limits - upper: Not available
Autoignition temperature: Not available
Evaporation rate: Not available
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available
VOC content: 0.13 %; 1.38 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of nitrogen. Oxides of carbon. Oxides of sulfur. Toxic fluorine compounds. Phenolics. Irritating organic vapours.

Incompatible materials: Free radical initiators. Amines. Aldehydes. Alkalis. Copper Aluminum. Rust. Bases. Acids. Strong oxidizing agents. Peroxides. Iron. Reducing agents. Zinc.

Conditions to avoid: Heat, flames, sparks and other sources of ignition. See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10). Exposure to sunlight.

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Bisphenol A fumarate resin	No	No	No
Polyglycol dimethacrylate	No	No	No
Polyglycol laurate	No	No	No
Polyethylene glycol monococoate	No	No	No
Titanium dioxide	No	Group 2B	No
Silica, amorphous, fumed, crystal-free	No	No	No
Saccharin	No	No	No
Epichlorohydrin-4,4'-isopropylidene diphenol resin	No	No	No
Ethylene glycol	No	No	No

Hazardous components	Health Effects/Target Organs
Bisphenol A fumarate resin	Irritant, Allergen
Polyglycol dimethacrylate	Irritant, Allergen
Polyglycol laurate	Allergen, Irritant
Polyethylene glycol monococoate	No Target Organs
Titanium dioxide	Irritant, Respiratory, Some evidence of carcinogenicity
Silica, amorphous, fumed, crystal-free	Nuisance dust
Saccharin	No Target Organs
Epichlorohydrin-4,4'-isopropylidene diphenol resin	Allergen, Irritant
Ethylene glycol	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic

12. ECOLOGICAL INFORMATION

Ecological information: Not 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.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

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:	Immediate Health, Delayed Health
CERCLA/SARA 313:	None above reporting de minimus
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Revision Number: 005.0

Issue date: 01/19/2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE 592 MEDIUM STRENGTH THREAD SEALANT known as LOCTITE® 592™ PST® PIPE SEALAN

IDH number: 88568

Product type: Anaerobic SealantAnaerobic Sealant

Item number: 59241

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: +1 (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
WARNING:	CAUSES SKIN AND EYE IRRITATION.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
EYE IRRITATION	2B

PICTOGRAM(S)

Precautionary Statements

Prevention: Wash affected area thoroughly after handling. Wear protective gloves.

Response: IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical attention. If eye irritation persists: Get medical attention. Take off contaminated clothing.

Storage: Not prescribed

Disposal: Not prescribed

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Mica	12001-26-2	10 - 20
Polyglycol dioctanoate	18268-70-7	10 - 20
Octan-1-ol	111-87-5	10 - 20
Ethene, tetrafluoro-, homopolymer	9002-84-0	5 - 10

Silica, amorphous, treated	68909-20-6	1 - 5
Titanium dioxide	13463-67-7	1 - 5
Propane-1,2-diol	57-55-6	1 - 5
Cumene hydroperoxide	80-15-9	0.1 - 1
Cumene	98-82-8	0.1 - 1

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

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

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Symptoms: See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.

Unusual fire or explosion hazards: Uncontrolled polymerization may occur at high temperatures resulting in explosions or rupture of storage containers.

Hazardous combustion products: Oxides of carbon. Toxic fluorine compounds. Irritating organic vapours.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Remove all sources of ignition. Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up as much material as possible. Store in a partly filled, closed container until disposal. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up.

7. HANDLING AND STORAGE

Handling: Use only with adequate ventilation. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Keep container closed. Refer to Section 8.

Storage: For safe storage, store at or below 38 °C (100.4 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

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 Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Mica	3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA	None	None
Polyglycol dioctanoate	None	None	None	None
Octan-1-ol	None	None	50 ppm (265 mg/m3) TWA	None
Ethene, tetrafluoro-, homopolymer	None	None	None	10 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction.
Silica, amorphous, treated	10 mg/m3 TWA Inhalable dust.	6 mg/m3 TWA	None	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 PEL Total dust. 15 MPPCF TWA Respirable fraction. 15 mg/m3 TWA Total dust. 50 MPPCF TWA Total dust. 5 mg/m3 TWA Respirable fraction.	None	None
Propane-1,2-diol	None	None	10 mg/m3 TWA Aerosol.	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) PEL (SKIN)	None	None

Engineering controls: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. Safety showers and eye wash stations should be available.

Skin protection: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact. Neoprene, Butyl-rubber, or nitrile-rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Paste
Color: White
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 10 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.21
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not available.

Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Not available.
Solubility in water:	Slight
Partition coefficient (n-octanol/water):	Not available.
VOC content:	0.72 %; 6.86 g/l
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of storage and use.
Hazardous reactions:	None under normal processing. Polymerization may occur at elevated temperature or in the presence of incompatible materials.
Hazardous decomposition products:	Oxides of carbon. Toxic fluorine compounds. Irritating organic vapours.
Incompatible materials:	Strong oxidizing agents.
Reactivity:	Not available.
Conditions to avoid:	Elevated temperatures. Heat, flames, sparks and other sources of ignition. Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system.
Skin contact: Causes skin irritation.
Eye contact: Causes eye irritation.
Ingestion: May cause gastrointestinal tract irritation if swallowed.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Mica	None	Lung
Polyglycol dioctanoate	None	Irritant
Octan-1-ol	Oral LD50 (Mouse) = 1,800 mg/kg Oral LD50 (Rat) = > 5 g/kg Dermal LD50 (Rabbit) = > 5 g/kg	Central nervous system, Irritant
Ethene, tetrafluoro-, homopolymer	None	No Target Organs
Silica, amorphous, treated	None	No Target Organs
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity
Propane-1,2-diol	Oral LD50 (Rabbit) = 18 g/kg Oral LD50 (Mouse) = 23.9 g/kg Oral LD50 (Rat) = 30 g/kg	Irritant
Cumene hydroperoxide	Inhalation LC50 (Mouse, 4 h) = 200 mg/l	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Cumene	Oral LD50 (Rat) = 2.91 g/kg Oral LD50 (Rat) = 1,400 mg/kg Inhalation LC50 (Rat, 4 h) = 8000 ppm	Central nervous system, Irritant, Lung

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Mica	No	No	No
Polyglycol dioctanoate	No	No	No
Octan-1-ol	No	No	No
Ethene, tetrafluoro-, homopolymer	No	No	No
Silica, amorphous, treated	No	No	No
Titanium dioxide	No	Group 2B	No
Propane-1,2-diol	No	No	No
Cumene hydroperoxide	No	No	No
Cumene	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No

12. ECOLOGICAL INFORMATION

Ecological information: Not 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.

Hazardous waste number: This product may contain traces of: D018: Benzene.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: RQ, Environmentally hazardous substance, solid, n.o.s.
Hazard class or division: 9
Identification number: UN 3077
Packing group: III
DOT Hazardous Substance(s): alpha,alpha-Dimethylbenzylhydroperoxide

International Air Transportation (ICAO/IATA)

Proper shipping name: RQ, Environmentally hazardous substance, solid, n.o.s.
Hazard class or division: 9
Identification number: UN 3077
Packing group: III

Water Transportation (IMO/IMDG)

Proper shipping name: RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard class or division: 9
Identification number: UN 3077
Packing group: III

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: Ethene, tetrafluoro-, homopolymer (CAS# 9002-84-0).

CERCLA/SARA Section 302 EHS: None above reporting de minimis.
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health
CERCLA/SARA Section 313: None above reporting de minimis.
CERCLA Reportable quantity: Cumene hydroperoxide (CAS# 80-15-9) 10 lbs. (4.54 kg)

California Proposition 65: This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: 2

Prepared by: Product Safety and Regulatory Affairs

Issue date: 01/19/2018

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SAFETY DATA SHEET

RECTORSEAL®NO.5® SPECIAL

Low-temperature, low-odor pipe thread sealant

Section 1 – Product and Company Information

Product Name
Rectorseal® No.5® Special

Product Codes
26551, 26431, 26390, 26271, 26191, 26112

Chemical Family
Organic

Use
Pipe thread sealant

Manufacturer's Name
The RectorSeal Corporation
2601 Spenwick Drive
Houston, Texas 77055 USA

Date of Validation
January 23, 2015

Date of Preparation
October 10, 2012

HMIS Codes

Health	1
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
Target Organ Effect, Teratogen, Reproductive hazard

Target Organs
Liver, Kidney, Testes.

GHS CLASSIFICATION

Eye irritation (Category 2B)
Reproductive toxicity (Category 2)

GHS Label elements, including precautionary statements

GHS08: Health Hazard/ Target Organ Toxicity
Signal word: **Warning**

Hazard statement(s)
H320 - Causes eye irritation.
H361 - Suspected of damaging fertility or the unborn child.

Precautionary statement(s)
P281 - Use personal protective equipment as required.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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:	Diethylene Glycol Methyl Ether
Percentage by weight:	16 Max
CAS Number:	111-77-3
EC#:	203-906-6

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 flush with large amounts fo water for at least 15 minutes. Get prompt 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

Extinguishing 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: None known.

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
Diethylene Glycol Methyl Ether	
ACGIH TLV:	N/D
OSHA PEL:	N/D

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:	374°F (190°C) @ 760 mmHg
Specific gravity (H20 = 1):	1.40
Vapor pressure (mmHg):	0.25 @ 77°F (20°C)
Melting point:	N/A
Vapor Density (Air = 1):	>1
Evaporation rate (Ethyl Acetate = 1):	<1
Appearance/Odor:	Gray paste/Mild odor
Solubility in water:	16%
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	16% or (160 g/L)
Flash point:	208°F (98°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, 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 Lister carcinogen.

Toxicology Data

Diethylene Glycol Methyl Ether

Oral-Rat LD50:	5500 mg/kg
Inhalation-Rat:	N/D

Section 12 – Ecological Information

Ecological Data

Ingredient Name:	Diethylene Glycol Methyl Ether
Food Chain Concentration Potential	N/A
Waterfowl Toxicity	N/A
BOD	34%
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:	Diethylene Glycol Methyl Ether
SARA 313	Yes
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

PARTS MASTER NON-CHLORINATED BRAKE AND PARTS CLEANER

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.

Date of issue: 03/28/2014 Revision date: 03/28/2014 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : PARTS MASTER NON-CHLORINATED BRAKE AND PARTS CLEANER

Product code : 7325

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Brake Cleaner.

1.3. Details of the supplier of the safety data sheet

The Penray Companies, Inc.
440 Denniston Ct.
Wheeling, IL 60090
T (800) 373-6729

Manufactured For:
Aftermarket Auto Parts Alliance
San Antonio, TX 78258
210-492-4868
www.alliance1.com

1.4. Emergency telephone number

Emergency number : (800) 373-6729
CHEMTREC (800) 424-9300
CHEMTREC International +1 (703) 527-3887 24 hr

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Flammable Liquid 2
Skin irritation 2
Eye irritation 2A
Reproductive toxicity 2 (developmental)
Specific target organ toxicity - Single exposure 3
Specific target organ toxicity - Repeated exposure 2
Aspiration hazard 1

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS02 GHS07 GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : Highly flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. Suspected of damaging the unborn child. May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated. May be fatal if swallowed and enters airways.

Precautionary statements (GHS-US) : 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. Wash hands thoroughly after handling. 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. Use only outdoors or in a well-ventilated area. Do not breathe gas/mist/vapors/spray. If exposed or concerned: Get medical advice/attention. If on skin (or hair): Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water/shower. If skin irritation occurs: 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 inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep cool. Dispose of contents and container in accordance with all local, regional, national and international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

17 % of the mixture consists of ingredient(s) of unknown acute toxicity.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Acetone	(CAS No) 67-64-1	40 - 70	Flam. Liq. 2 Eye Irrit. 2A STOT SE 3
Heptane, branched, cyclic and linear	(CAS No) 426260-76-6	15 - 40	Flam. Liq. 2 Skin Irrit. 2 STOT SE 3 Asp. Tox. 1
n-Heptane	(CAS No) 142-82-5	10 - 30	Flam. Liq. 2 Skin Irrit. 2 STOT SE 3
Xylenes (o-, m-, p- isomers)	(CAS No) 1330-20-7	7 - 13	Flam. Liq. 3 Acute Tox. 4 (Dermal, Inhalation) Skin Irrit. 2
Toluene	(CAS No) 108-88-3	0.5 - 1.5	Flam. Liq. 2 Acute Tox. 4 (Oral) Skin Irrit. 2 Repr. 2 STOT SE 3 STOT RE 2 Asp. Tox. 1
The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.			

SECTION 4: First aid measures

4.1. Description of first aid measures

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. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. If irritation persists, get medical attention.

First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

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

Symptoms/injuries after inhalation : May cause drowsiness, dizziness and central nervous system depression. May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin.

Symptoms/injuries after eye contact : Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.

Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways. This product may be aspirated into the lungs and cause chemical pneumonitis. May cause stomach distress, nausea or vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Powder, water spray, foam, carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon.

5.3. Advice for firefighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Vapours may be heavier than air and may travel along the ground to a distant ignition source and flash back. Use water spray to keep fire-exposed containers cool.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Eliminate sources of ignition.

6.2. Methods and material for containment and cleaning up

For containment : Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Scoop up material and place in a disposal container. Provide ventilation.

6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. Do not breathe gas/mist/vapors/spray. Do not swallow. Handle and open container with care. Use only non-sparking tools. When using do not eat, drink or smoke. Use only outdoors or in a well-ventilated area.

Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed and in a well-ventilated place. Store locked up. Keep cool. Keep away from heat, sparks, and flame.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Acetone (67-64-1)		
USA ACGIH	ACGIH TWA (ppm)	500 ppm
USA ACGIH	ACGIH STEL (ppm)	750 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	2400 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

n-Heptane (142-82-5)		
USA ACGIH	ACGIH TWA (ppm)	400 ppm
USA ACGIH	ACGIH STEL (ppm)	500 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	2000 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Xylenes (o-, m-, p- isomers) (1330-20-7)		
USA ACGIH	ACGIH TWA (ppm)	100 ppm
USA ACGIH	ACGIH STEL (ppm)	150 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	435 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm

Toluene (108-88-3)		
USA ACGIH	ACGIH TWA (ppm)	20 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm
USA OSHA	OSHA PEL (STEL) (ppm)	150 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	300 ppm

8.2. Exposure controls

Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : Wear chemically resistant protective gloves.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection	:	Wear suitable protective clothing.
Respiratory protection	:	A NIOSH approved respirator is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. 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.
Environmental exposure controls	:	Maintain levels below Community environmental protection thresholds.
Other information	:	Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear.
Colour	:	Colourless.
Odour	:	Solvent.
Odour threshold	:	No data available.
pH	:	No data available.
Relative evaporation rate (butylacetate=1)	:	No data available.
Melting point	:	No data available.
Freezing point	:	No data available.
Boiling point	:	~ 56 °C (~ 133 °F) (Acetone)
Flash point	:	~ -20 °C (~ -4 °F) (Acetone)
Self ignition temperature	:	No data available.
Decomposition temperature	:	No data available.
Flammability (solid, gas)	:	Flammable
Vapour pressure	:	No data available.
Relative vapour density at 20 °C	:	No data available.
Relative density	:	0.730 - 0.745
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

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions. May form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat. Incompatible materials. Open flame.

10.5. Incompatible materials

Acids. Amines. Bases. Oxidizers.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

7325	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 20 mg/l/4h

Acetone (67-64-1)	
LD50 oral rat	5800 mg/kg
LC50 inhalation rat (mg/l)	50100 mg/m³/8h

n-Heptane (142-82-5)	
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (mg/l)	103 g/m³/4h

Xylenes (o-, m-, p- isomers) (1330-20-7)	
LD50 oral rat	4300 mg/kg
LD50 dermal rabbit	> 1700 mg/kg
LC50 inhalation rat (ppm)	5000 ppm/4h
LC50 inhalation rat (mg/l)	47635 mg/l/4h

Toluene (108-88-3)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	12124 mg/kg
LD50 dermal rabbit	8390 mg/kg
LC50 inhalation rat (mg/l)	28.1 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : Based on available data, the classification criteria are not met.
Germ cell mutagenicity : Based on available data, the classification criteria are not met.
Carcinogenicity : Based on available data, the classification criteria are not met.

Xylenes (o-, m-, p- isomers) (1330-20-7)	
IARC group	3

Toluene (108-88-3)	
IARC group	3

Reproductive toxicity : Suspected of damaging the unborn child.
Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard : May be fatal if swallowed and enters airways.

Symptoms/injuries after inhalation : May cause drowsiness, dizziness and central nervous system depression. May cause respiratory irritation.
Symptoms/injuries after skin contact : Causes skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact : Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways. This product may be aspirated into the lungs and cause chemical pneumonitis. May cause stomach distress, nausea or vomiting.

SECTION 12: Ecological information

12.1. Toxicity

Ecology – general : May cause long-term adverse effects in the aquatic environment.

12.2. Persistence and degradability

7325	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

7325	
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

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

Additional information : Handle empty containers with care because residual vapours are flammable.

SECTION 14: Transport information

In accordance with DOT

14.1. UN number

UN-No. : UN1993

14.2. UN proper shipping name

Proper Shipping Name : Flammable liquids, n.o.s. (Acetone, Heptane)

Department of Transportation Hazard Classes : 3

Hazard labels :

Packing group (DOT) : II

14.3. Additional information

Other information : No supplementary information available.

Special transport precautions : Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. US Federal regulations

Acetone (67-64-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

Heptane, branched, cyclic and linear (426260-76-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

n-Heptane (142-82-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

Xylenes (o-, m-, p- isomers) (1330-20-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %

Toluene (108-88-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %

15.2. US State regulations

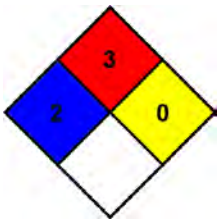
7325	
State or local regulations	This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

IARC	**International Agency for Research on Cancer.**
	1 - Carcinogenic to humans; 2A - Probably carcinogenic to humans; 2B - Possibly carcinogenic to humans; 3 - Not classifiable; 4 - Probably not carcinogenic to humans.
NTP	**National Toxicology Program.**
	1 - Evidence of Carcinogenicity; 2 - Known Human Carcinogens; 3 - Reasonably anticipated to be Human Carcinogen; 4 - Substances delisted from report on Carcinogens; 5 - Twelfth Report - Items under consideration.

SECTION 16: Other information

Indication of changes	:	None.
Date of issue	:	03/28/2014
Other information	:	None.
NFPA health hazard	:	2
NFPA fire hazard	:	3
NFPA reactivity	:	0



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

GHS SAFETY DATA SHEET

WELD-ON® 724™ Low VOC Cement for CPVC Plastic Pipe

Date Revised: **JAN 2019**
Supersedes: **DEC 2018**

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **WELD-ON® 724™ 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
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
EUH066: Repeated exposure may cause skin dryness or cracking	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS	EINECS	REACH Registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	01-2119444314-46-0000	40 - 70
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	01-2119457290-43-0000	2 - 15
Cyclohexanone	108-94-1	203-631-1	01-2119453616-35-0000	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	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 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 8-hr TLV	ACGIH 15-min STEL	OSHA 8-hr PEL	OSHA 15 min STEL	OSHA PEL-Ceiling	CAL/OSHA 8-hr PEL	CAL/OSHA Ceiling	CAL/OSHA 15-min 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:	Gray or orange, 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:	0.984 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water.		**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)	Not Established

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 Soil:	If released into the environment, this product can move rapidly through the soil.
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

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

Risk Phrases:
R11: Highly flammable.
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:
S2: Keep out of the reach of children
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.

Compliance Statement: This SDS was prepared to be in accordance with:
US OSHA Hazard Communication Standard 29 CFR 1910.1200 (Rev 2012)
European Regulation (EC) No (EU) 2015/830 on classification, labelling and packaging of substances and mixtures

SECTION 16 - OTHER INFORMATION

Specification Information:	
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs
E-mail address:	<EHSinfo@ipscorp.com>
Training necessary:	Yes, training in practices and procedures contained in product literature.
Reissue date / reason for reissue:	1/11/2019 / 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.

GHS SAFETY DATA SHEET

Date Revised: **JAN 2019**

WELD-ON® P-70™ Low VOC Primer for PVC and CPVC Plastic Pipe Supersedes: **DEC 2018**

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **WELD-ON® P-70™ 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 Oral Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Carcinogenity	Category 2				
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 Registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	01-2119444314-46-0000	45 - 59
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	01-2119457290-43-0000	19 - 29
Cyclohexanone	108-94-1	203-631-1	01-2119453616-35-0000	5 - 15
Acetone	67-64-1	200-662-2	01-2119471330-49-0000	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 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 8 hour TLV	ACGIH 15 min STEL	OSHA 8 hour PEL	OSHA 15 min STEL	OSHA PEL-Ceiling	CAL/OSHA 8 hour PEL	CAL/OSHA Ceiling	CAL/OSHA 15 min 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	250 ppm	500 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:	Clear or 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:	0.858 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water.		**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: ≤ 550 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 Soil:	If released into the environment, this product can move rapidly through the soil.
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.-THF) 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.

Compliance Statement: This SDS was prepared to be in accordance with:
US OSHA Hazard Communication Standard 29 CFR 1910.1200 (Rev 2012)
European Regulation (EC) No (EU) 2015/830 on classification, labelling and packaging of substances and mixtures

SECTION 16 - OTHER INFORMATION

Specification Information:	
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs
E-mail address:	<EHSinfo@ipscorp.com>
Training necessary:	Yes, training in practices and procedures contained in product literature.
Reissue date / reason for reissue:	1/11/2019 / 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.

PCCLP001372

FORREST Technical Coatings

SAFETY DATA SHEET

1. Identification

Product identifier	**MAR-PROOF H/S LACQUER SANDING SEALER**
Other means of identification	
Product code	I-1410-00
Recommended use	Interior wood finish.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	FORREST Technical Coatings
Address	1011 McKinley Street
	P.O. Box 22110
City	Eugene
State	OR
Zip	97402
Country	United States
Telephone	1 (541) 342-1821
Contact person	EHS Department
Website	www.forrestpaint.com
E-mail	info@forrestpaint.com
Emergency phone number	1 (800) 424-9300 (CHEMTREC - Contract # 8730) USA & Canada
	+1 703-527-3887 (CHEMTREC - Contract # 8730) Outside USA and Canada

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Reproductive toxicity	Category 1A
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 3
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 skin irritation. Causes serious eye damage. May cause drowsiness or dizziness. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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. Do not breathe mist/vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Immediately call a poison center/doctor. 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. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Keep cool. 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.
Hazard(s) not otherwise classified (HNOC)	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
Supplemental information	56.07% of the mixture consists of component(s) of unknown acute oral toxicity. 95.04% of the mixture consists of component(s) of unknown acute dermal toxicity. 62.11% of the mixture consists of component(s) of unknown acute inhalation toxicity. 48.25% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 49.8% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
BUTYL ACETATE		123-86-4	10-25
METHYL ETHYL KETONE		78-93-3	10-25
SOLVENT NAPHTHA, LIGHT ALIPHAT		64742-89-8	10-25
TOLUENE		108-88-3	10-25
ISOPROPANOL		67-63-0	1-10
n-BUTYL ALCOHOL		71-36-3	1-10
ZINC STEARATE		557-05-1	1 - 2.5
Other components below reportable levels			20-35

*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. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
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	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.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
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. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
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. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. 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. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. 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). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Prevent product from entering drains. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. 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 release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

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. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist/vapors. Do not get this material in contact with eyes. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

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. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
BUTYL ACETATE (CAS 123-86-4)	PEL	710 mg/m3	
		150 ppm	
ISOPROPANOL (CAS 67-63-0)	PEL	980 mg/m3	
		400 ppm	
METHYL ETHYL KETONE (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
n-BUTYL ALCOHOL (CAS 71-36-3)	PEL	300 mg/m3	
		100 ppm	
SOLVENT NAPHTHA, LIGHT ALIPHAT (CAS 64742-89-8)	PEL	400 mg/m3	
		100 ppm	
ZINC STEARATE (CAS 557-05-1)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
TOLUENE (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
BUTYL ACETATE (CAS 123-86-4)	STEL	150 ppm
	TWA	50 ppm
ISOPROPANOL (CAS 67-63-0)	STEL	400 ppm
	TWA	200 ppm
METHYL ETHYL KETONE (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm
n-BUTYL ALCOHOL (CAS 71-36-3)	TWA	20 ppm
TOLUENE (CAS 108-88-3)	TWA	20 ppm
ZINC STEARATE (CAS 557-05-1)	TWA	10 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
BUTYL ACETATE (CAS 123-86-4)	STEL	950 mg/m3	
		200 ppm	
	TWA	710 mg/m3	
		150 ppm	
ISOPROPANOL (CAS 67-63-0)	STEL	1225 mg/m3	
		500 ppm	
	TWA	980 mg/m3	
		400 ppm	
METHYL ETHYL KETONE (CAS 78-93-3)	STEL	885 mg/m3	
		300 ppm	
	TWA	590 mg/m3	
		200 ppm	
n-BUTYL ALCOHOL (CAS 71-36-3)	Ceiling	150 mg/m3	
		50 ppm	
SOLVENT NAPHTHA, LIGHT ALIPHAT (CAS 64742-89-8)	TWA	400 mg/m3	
		100 ppm	
TOLUENE (CAS 108-88-3)	STEL	560 mg/m3	
		150 ppm	
	TWA	375 mg/m3	
		100 ppm	
ZINC STEARATE (CAS 557-05-1)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
ISOPROPANOL (CAS 67-63-0)	40 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	*
TOLUENE (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

n-BUTYL ALCOHOL (CAS 71-36-3) Can be absorbed through the skin.
TOLUENE (CAS 108-88-3) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

n-BUTYL ALCOHOL (CAS 71-36-3) Skin designation applies.
TOLUENE (CAS 108-88-3) Skin designation applies.

US - Tennessee OELs: Skin designation

n-BUTYL ALCOHOL (CAS 71-36-3) Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

n-BUTYL ALCOHOL (CAS 71-36-3) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation 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 and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not 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 Liquid.

Color Clear.

Odor Solvent.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range 170 - 300 °F (76.67 - 148.89 °C) estimated

Flash point 16.0 °F (-8.9 °C) estimated

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 1.3 % estimated

Flammability limit - upper (%)	12 % estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	56.79 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	338 °F (170 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	7.55 lb/gal
Explosive properties	Not explosive.
Flammability class	Flammable IB estimated
Oxidizing properties	Not oxidizing.
Percent volatile	76.19 %w/w
Specific gravity	0.91
VOC	683.11 g/l MATERIAL 685.69 g/l COATING

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	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Amines. Ammonia. Caustics. Chlorine. Isocyanates. Nitrates.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye damage.
Ingestion	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	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways.

Components	Species	Test Results
n-BUTYL ALCOHOL (CAS 71-36-3)		
Acute		
Dermal		
LD50	Rabbit	3430 mg/kg

Components	Species	Test Results
Inhalation		
LC50	Rat	17.76 mg/l
Oral		
LD50	Rat	2292 mg/kg
TOLUENE (CAS 108-88-3)		
Acute		
Dermal		
LD50		5000 mg/kg
Inhalation		
LC50	Rat	20 mg/l
Oral		
LD50		5000 mg/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye damage.

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 Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

TOLUENE (CAS 108-88-3) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components		Species	Test Results
BUTYL ACETATE (CAS 123-86-4)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	17 - 19 mg/l, 96 hours
ISOPROPANOL (CAS 67-63-0)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 1400 mg/l, 96 hours
METHYL ETHYL KETONE (CAS 78-93-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	4025 - 6440 mg/l, 48 hours
Fish	LC50	Sheepshead minnow (Cyprinodon variegatus)	> 400 mg/l, 96 hours

Components		Species	Test Results
n-BUTYL ALCOHOL (CAS 71-36-3)			
Aquatic			
Algae	EC50	Freshwater algae	225 mg/l
	NOEC	Freshwater algae	129 mg/l
Crustacea	LC50	Water flea (Daphnia magna)	1328 mg/l
	NOEC	Water flea (Daphnia magna)	4.1 mg/l
Fish	LC50	Freshwater fish	1376 mg/l
SOLVENT NAPHTHA, LIGHT ALIPHAT (CAS 64742-89-8)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia pulex)	2.7 - 5.1 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	8.8 mg/l, 96 hours
			8.8 mg/l, 96 hours
TOLUENE (CAS 108-88-3)			
Aquatic			
Algae	LC50	Freshwater algae	134 mg/l
	NOEC	Freshwater algae	10 mg/l
Crustacea	LC50	Water flea (Ceriodaphnia dubia)	3.78 mg/l, 48 hours
	NOEC	Water flea (Ceriodaphnia dubia)	0.74 mg/l
Fish	LC50	Freshwater fish	5.5 mg/l
	NOEC	Freshwater fish	1.4 mg/l

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

BUTYL ACETATE	1.78
ISOPROPANOL	0.05
METHYL ETHYL KETONE	0.29
n-BUTYL ALCOHOL	1
TOLUENE	2.73

Mobility in soil No data available.

Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. 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 D001: Waste Flammable material with a flash point <140 F
D018: Waste Benzene
D035: Waste Methyl ethyl ketone
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 Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1263
UN proper shipping name	Paint
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	149, B52, IB2, T4, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	173
Packaging bulk	242

IATA

UN number	UN1263
UN proper shipping name	Paint
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1263
UN proper shipping name	Paint
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
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 established.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

BUTYL ACETATE (CAS 123-86-4)	Listed.
ISOPROPANOL (CAS 67-63-0)	Listed.
METHYL ETHYL KETONE (CAS 78-93-3)	Listed.
n-BUTYL ALCOHOL (CAS 71-36-3)	Listed.
TOLUENE (CAS 108-88-3)	Listed.
ZINC STEARATE (CAS 557-05-1)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Serious eye damage or eye irritation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard
Hazard not otherwise classified (HNOC)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
ISOPROPANOL	67-63-0	1-10
n-BUTYL ALCOHOL	71-36-3	1-10
TOLUENE	108-88-3	10-25
ZINC STEARATE	557-05-1	1 - 2.5

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

TOLUENE (CAS 108-88-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

METHYL ETHYL KETONE (CAS 78-93-3)	6714
TOLUENE (CAS 108-88-3)	6594

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

METHYL ETHYL KETONE (CAS 78-93-3)	35 %WV

TOLUENE (CAS 108-88-3) 35 %WV

DEA Exempt Chemical Mixtures Code Number

METHYL ETHYL KETONE (CAS 78-93-3) 6714
TOLUENE (CAS 108-88-3) 594

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

BUTYL ACETATE (CAS 123-86-4) Low priority
ISOPROPANOL (CAS 67-63-0) Low priority
METHYL ETHYL KETONE (CAS 78-93-3) Low priority
n-BUTYL ALCOHOL (CAS 71-36-3) Low priority

US state regulations

California Proposition 65

WARNING: This product can expose you to chemicals including BENZENE, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

BENZENE (CAS 71-43-2) Listed: February 27, 1987
DIISONONYL PHTHALATE (CAS 68515-48-0) Listed: December 20, 2013
ETHYL BENZENE (CAS 100-41-4) Listed: June 11, 2004

California Proposition 65 - CRT: Listed date/Developmental toxin

BENZENE (CAS 71-43-2) Listed: December 26, 1997
TOLUENE (CAS 108-88-3) Listed: January 1, 1991

California Proposition 65 - CRT: Listed date/Male reproductive toxin

BENZENE (CAS 71-43-2) Listed: December 26, 1997

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

ISOPROPANOL (CAS 67-63-0)
METHYL ETHYL KETONE (CAS 78-93-3)
SOLVENT NAPHTHA, LIGHT ALIPHAT (CAS 64742-89-8)
TOLUENE (CAS 108-88-3)

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
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
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)
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 08-14-2016
Revision date 05-02-2022
Version # 02
HMIS® ratings Health: 3*
Flammability: 3
Physical hazard: 0

NFPA ratings	Health: 3 Flammability: 3 Instability: 0
NFPA ratings	
Disclaimer	The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create any warranty, expressed or implied. It is the responsibility of the user to determine the applicability of this information and the suitability of the material or product for any particular purpose.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.

ATTACHMENT D

COOLING TOWER SDS

Enviro Tech Chemical Services, Inc. 500 Winmoore Way Modesto, CA 95358

SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION

Product Identifier: BROMMAX 7.1 **Product Code:** H28

Product Use: Water treatment antimicrobial solution

Chemical Family: Stabilized Liquid Bromine

Enviro Tech Chemical Services, Inc.
500 Winmoore Way Modesto, CA 95358
(209) 581-9576 (7 AM to 5 PM, PST, Monday to Friday)

24 Hr. Emergency Tel.#: 800-424-9300

SECTION 2 - HAZARDS IDENTIFICATION

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), These requirements differ from the classification criteria and hazard information required for safety data sheets of non-pesticide chemicals. Please see Section 15 for FIFRA labeling information.

Classification of the Substance or Mixture:

Skin Corrosion - Category 1
Serious Eye Damage - Category 1
Corrosive to Metals - Category 1
Acute Toxicity - Inhalation Category 4
Acute Toxicity - Dermal Category 5

Signal Word: DANGER

Hazard Statements:
Causes severe skin burns and eye damage
May be corrosive to metals
May be harmful if inhaled
May be harmful in contact with skin

Precautionary Statements:

Prevention
Wash hands thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection.
Keep only in original container.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.

Response
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/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.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.

Storage
Store locked up.
Store in a corrosive resistant container with a resistant inner liner.

Disposal
Dispose of contents/container in accordance with local regulations.

Hazards not Otherwise Classified:
No other hazards classified.

Enviro Tech Chemical Services, Inc. 500 Winmoore Way Modesto, CA 95358

SAFETY DATA SHEET

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Synonym	CAS Number	Concentration
SULFAMIC ACID, N-BROMO, SODIUM SALT	NONE	1004542-84-0	15-25%
SODIUM HYDROXIDE	CAUSTIC SODA	1310-73-2	1-5%

SECTION 4 - FIRST-AID MEASURES

Inhalation: Get medical advice/attention if you feel unwell or are concerned.

Skin Contact: Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash with plenty of lukewarm, gently flowing water with a flushing duration of 15-20 minutes. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before re-use or discard.

Eye Contact: Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 30 minutes. Take care not to rinse contaminated water into the unaffected eye or into the face. Immediately call a POISON CENTER/doctor.

Ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. If vomiting occurs naturally, lie on your side, in the recovery position.

Most Important Symptoms and Effects, both Acute and Delayed: Causes irritation/burns that may result in permanent impairment of vision, even blindness. Contact with skin can cause irritation. May be harmful if swallowed.

Indication of any Immediate Medical Attention and Special Treatment Needed: Treat symptomatically

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media: Use water spray, powder, foam, carbon dioxide.

Special hazards arising from the substance or mixture: Non combustible. May give off irritating or toxic fumes (or gases) in a fire.

Flammability classification (OSHA 29 CFR 1910.106) (Hazcom 2012): Non flammable

Hazardous Combustion Products: May cause fire and explosions when in contact with incompatible materials.

Special protective equipment and precautions for firefighters: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Methods and materials for containment and cleaning up: SMALL SPILLS (less than 1 gallon): Dike small spills with inert material (sand, earth, etc.). Collect in plastic containers only. Wash area and let dry. LARGE SPILL: Should be diked with sand ahead of spill. Collect in plastic containers only. Ensure adequate decontamination of tools and equipment following clean up.

Special spill response procedures: Collect spills in plastic containers only. Prevent from entering sewers, waterways, or low areas.

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling: Wear at least chemical resistant gloves and eye protection, face shield, and chemical resistant garments when handling, moving or using this product. Do not contaminate water, food, or feed by storage or disposal.

Conditions for Safe Storage: Store in a cool, dry, well ventilated place away from direct sunlight. Keep container closed when not in use.

Incompatible Materials: Avoid strong reducing agents, soft metals, heat and acids.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Identity	CAS Number	Type	Exposure Limit Values	Source
SODIUM HYDROXIDE	1310-73-2	TLV	2 mg/m3 (ceiling)	ACGIH
		PEL	2 mg/m3 (ceiling)	NIOSH
		REL	2 mg/m3 (ceiling)	OSHA

Ventilation and engineering measures: Forced air, local exhaust, or open air is adequate.

Respiratory Protection: Not a respiratory irritant unless dealing with a mist form, then wear appropiate NIOSH respirator.

Skin Protection: Wear chemical resistant gloves and chemical resistant garments when handling, wash garments before re-use.

Eye/Face Protection: Wear chemical goggles; also wear a face shield if splashing hazard exists.

Other Protective Equipment: Eye wash facility and emergency shower should be in close proximity.

General Hygiene Conditions: Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industry hygiene and safety practice.

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SAFETY DATA SHEET

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow to light orange liquid

Odor: Mild chlorine like odor

pH: 12.0-13.0 (1:100)

Melting/Freezing point: < -4ºC / 25ºF

Initial boiling point and boiling range: No information available

Flash Point: Not applicable

Flammability (solid, gas): Non flammable

Specific gravity: 1.3 - 1.35 g/mL

Solubility in water: Complete

Decomposition temperature: No information available.

Viscosity: 15-25 cSt at 20ºC / 68ºF

SECTION 10 - STABILITY AND REACTIVITY

Reactivity: Reactive with oxidizing agents, reducing agents, organic materials, metals, acids and alkalis.

Chemical Stability: Stable for up to 1 year when stored under normal conditions.

Possibility of Hazardous Reactions: May react with incompatible materials

Conditions to Avoid: Avoid contact with strong acids and oxidizers. Incompatible materials and cold temperatures.

Incompatible Materials: Strong reducing agents such as sulfite and metabisulfite, strong acids and bases. Never mix this product with undiluted sodium hypochlorite bleach. The mixture will result in a violent exothermic reaction that produces a great deal of heat and nitrogen gas bubbles.

Hazardous Decomposition Products: Nitrogen oxides, bromine and hydrobromic acid vapors.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry - inhalation: YES

Routes of entry - skin & eye: YES

Routes of entry - ingestion: YES

Routes of entry - skin absorption: NO

Potential Health Effects:

Signs and symptoms of short term (acute) exposure:

Inhalation: May cause irritation to respiratory system in mist/vapor form.

Ingestion: Corrosive! Swallowing causes severe burns of mouth, throat, and stomach. Severe scarring of tissue, corrosion, permanent tissue destruction and death may result. Symptoms may include severe pain, nausea, vomiting, diarrhea, shock, hemorrhaging and/or fall in blood pressure. Damage may appear days after exposure.

Skin: Corrosive! Contact with skin causes irritation or severe burns and scarring with greater exposures.

Eye: Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.

Potential Chronic Health Effects:

Mutagenicity: May have mutagenic and tumorigenic effects with long term exposure.

Carcinogenicity: Not expected to be a carcinogen or tumorigen.

Reproductive effects: May cause reproductive effects.

Sensitization to material: Not a known sensitizer in humans or animals.

Specific target organ effects: No information available

Medical conditions aggravated by overexposure: No information available

Toxicological data: The calculated ATE values for this mixture are:

ATE oral = > 5000 mg/kg

ATE dermal = > 2000 mg/kg

ATE inhalation (mist) = 2.85 mg/L

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SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: May be harmful to aquatic life.

Persistence and degradability: No information available.

Bioaccumulation potential: No information available.

Mobility in soil: No information available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Handling for disposal: Do not contaminate water, food, or feed by storage and/or disposal. When handling refer to protective measures listed in sections 7 and 8. Empty residue from containers, rinse container well.

Method of disposal: Dispose of in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.

RCRA: If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of: Corrosivity D002

SECTION 14 - TRANSPORTATION INFORMATION

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

Please note the GHS and DOT Standards are NOT identical and therefore can have varying classifications

US 49 CFR/DOT/IATA/IMDG Information:

UN No.: 1760

UN Proper Shipping Name: Corrosive Liquid, n.o.s. (bromide salts)

Transportation hazard class(es): 8

Packing Group: III

Environmental hazards: Not a Marine Pollutant

SECTION 15 - REGULATORY INFORMATION

FIFRA Classification/Typical Hazard Labeling, as outlined in EPA Label Review Manual

Hazard Data

Signal Word	DANGER
Acute Toxicity, oral	Not Classified (NC)
Acute Toxicity, dermal	Not Classified (NC)
Acute Toxicity, inhalation	Not classified (NC)
Skin irritation/corrosion	Category I: Corrosive. Causes skin burns
Serious eye damage	Category I: Corrosive, Causes irreversible eye damage
Sensitization	Not Classified (NC)
Environmental (aquatic) toxicity	This pesticide is toxic to fish and other aquatic organisms.

US Federal Information:

TSCA information: All components are listed on the TSCA inventory.

US CERCLA reportable quantity (RQ): Non Regulated Material.

SARA Title III: Acute Health Hazard

SECTION 16 - OTHER INFORMATION

Legend:

SARA: The Superfund Amendments and Reauthorization Act

RCRA: Resource Conservation and Recovery Act

TSCA: Toxic Substances Control Act

CFR: Code of Federal Regulations

DOT: Department of Transportation

ATE: Acute Toxicity Estimate

Revision No: 2

Preparation date: 7/14/2017

SAFETY DATA SHEET

Revision Date 01-Apr-2015 **Version** 1

1. IDENTIFICATION

Product identifier
Product Name BIOGUARD MAINTAIN BROMINATING TABLETS

Other means of identification
Product Code 22024BIO
UN/ID no. UN1479

Recommended use of the chemical and restrictions on use
Recommended Use Swimming Pool Product. Spa Product.
Uses advised against Do not mix with other chemicals

Details of the supplier of the safety data sheet
Supplier Address
Bio-Lab, Inc.
P.O. Box 300002
Lawrenceville, GA 30049-1002
Telephone 800-859-7946

Emergency telephone number
Emergency Telephone Chemtrec (Transportation) 1-800-424-9300, 703-527-3887
Poison Control Center (Medical) : (877) 800-5553

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 4
Acute toxicity - Dermal	Category 5
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

Label elements

Emergency Overview

Danger

Hazard statements
Harmful if swallowed
May be harmful in contact with skin
Causes severe skin burns and eye damage

Color white **Physical state** Solid **Odor** Bromine

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
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 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. Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting.

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No.	Weight-%
1-bromo-3-chloro-5,5-dimethylhydantoin	16079-88-2	96

4. FIRST AID MEASURES

Description of first aid measures

General advice
If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing.

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin contact
Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Call a physician.

Inhalation
Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Call a physician.

Ingestion
Call a physician immediately. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Have person sip a glass of water if able to swallow.

Self-protection of the first aider Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Flood fire area with water from a distance.

Unsuitable extinguishing media Do not use dry chemicals, carbon dioxide, or halogenated extinguishing agents.

Specific hazards arising from the chemical
Do not let the fire burn.

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 Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Do not add water to spilled material. Using clean dedicated equipment, sweep and scoop all spilled material, contaminated soil, and other contaminated material and place into clean dry containers for disposal. Do not close containers containing wet or damp material. They should be left open to disperse any hazardous gases that may form.

Methods for cleaning up Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly. Pick up and transfer to properly labeled containers. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water. Do not use floor sweeping compounds to clean up spills. Do not transport wet or damp material. Contact supplier in Section 1 for instructions, especially for damp or contaminated material.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Use with local exhaust ventilation. Do not mix with other chemicals. Keep/Store away from clothing/ combustible materials. Wash thoroughly after handling. Use only in well-ventilated areas.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in a dry place. Keep in properly labeled containers.

Incompatible materials Incompatible with strong acids and bases. Ammonia. Calcium hypochlorite. Combustible material. Do not mix with other swimming pool/spa chemicals in their concentrated forms. Reducing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Tight sealing safety goggles.

Skin and body protection Wear protective gloves and protective clothing.

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 Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	tablet	**Odor**	Bromine
Color	white	**Odor threshold**	No information available

Property	Values	Remarks • Method
pH	4.5	0.1% solution
Melting point/freezing point	120 °C / 248 °F	Decomposes on heating
Boiling point / boiling range	No information available	
Flash point	No information available	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	

Specific Gravity	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Density	0.87-0.92	g/cm3
Bulk density	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available

10. STABILITY AND REACTIVITY

Reactivity
Stable under normal conditions
Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Conditions to avoid
Extremes of temperature and direct sunlight. Protect from moisture. Do not mix with other chemicals.
Incompatible materials
Incompatible with strong acids and bases. Ammonia. Calcium hypochlorite. Combustible material. Do not mix with other swimming pool/spa chemicals in their concentrated forms. Reducing agent.
Hazardous Decomposition Products
Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	Irritating to respiratory system.
Eye contact	Risk of serious damage to eyes.
Skin contact	Irritating to skin. Contact with moist skin may cause skin burns. Causes burns.
Ingestion	Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
1-bromo-3-chloro-5,5-dimethylhydantoin 16079-88-2	= 1390 mg/kg (Rat)	> 2 g/kg (Rabbit)	-

Information on toxicological effects

Symptoms No information available.

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	No information available.

Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

Oral LD50	578 mg/kg (rat)
Dermal LD50	> 2000 mg/kg (rabbit)

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility
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. Refer to all federal, state and local regulations prior to disposal of container and unused contents by reuse, recycle or disposal.

14. TRANSPORT INFORMATION

Note: Limited quantity (LQ) exception is possible

DOT

UN/ID no.	UN1479
Proper shipping name	Oxidizing solid, n.o.s. (Contains bromo-chloro-dimethylhydantoin)
Hazard Class	5.1
Packing Group	III
Description	UN1479, Oxidizing solid, n.o.s. (Contains bromo-chloro-dimethylhydantoin), 5.1, III
Emergency Response Guide Number	140

TDG

UN/ID no.	UN3085
Proper shipping name	Oxidizing solid, corrosive, n.o.s. (Contains Bromo-chloro-dimethylhydantoin)

Hazard Class	5.1
Subsidiary class	8
Packing Group	III
Description	UN3085, Oxidizing solid, corrosive, n.o.s. (Contains bromo-chloro-dimethylhydantoin), 5.1 (8), III

IATA

UN/ID no.	UN3085
Proper shipping name	Oxidizing solid, corrosive, n.o.s. (Contains Bromo-chloro-dimethylhydantoin)
Hazard Class	5.1
Subsidiary hazard class	8
Packing Group	III
Description	UN3085, Oxidizing solid, corrosive, n.o.s. (Contains bromo-chloro-dimethylhydantoin), 5.1 (8), III

IMDG

UN/ID no.	UN3085
Proper shipping name	Oxidizing solid, corrosive, n.o.s. (Contains Bromo-chloro-dimethylhydantoin)
Hazard Class	5.1
Subsidiary hazard class	8
Packing Group	III
EmS-No.	F-A, S-Q
Marine pollutant	This material meets the definition of a marine pollutant

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 does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number 5185-420

EPA Statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Difference between SDS and EPA Pesticide label

DANGER. Highly Corrosive. Causes irreversible eye damage and skin burns. Harmful if swallowed. Irritating to nose and throat. Do not get in eyes, on skin or on clothing. Wear protective eyewear (goggles or safety glasses). Wear protective clothing and rubber gloves when handling this product. Avoid breathing dust and fumes. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	**Health hazards** 3	**Flammability** 0	**Instability** 1	**Physical and Chemical Properties** OX
HMIS	**Health hazards** 3	**Flammability** 0	**Physical hazards** 1	**Personal protection** X

Prepared By Regulatory Affairs
Revision Date 01-Apr-2015
Revision Note No information available

Disclaimer

The information provided in this Material 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

SAFETY DATA SHEET

SEI-226
Scale and Corrosion Inhibitor

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

MANUFACTURER: Steam Engineering
204 NE 117th Ave
Vancouver, WA 98684
INFORMATION: (360) 256-8655 or (800) 346-6152

EMERGENCY PHONE: **INFOTRAC:** (800) 535-5053
PRODUCT NAME: Scale and Corrosion Inhibitor
PRODUCT NUMBER: SEI-226
DATE PREPARED: 04/21/2015
LAST REVISION: 06/22/2015

Uses: Cooling Tower Treatment
Use Restrictions: None known

PURE: ☐ LIQUID: ☒
MIXTURE: ☒ SOLID: ☐

2. HAZARDOUS IDENTIFICATION:

EMERGENCY OVERVIEW: Irritation

GHS CLASSIFICATION: Skin: (Category 2) Eyes: (Category2A) Acute Toxicity Oral: (Category 4)

GHS Label elements, including precautionary statements
SIGNAL WORD: **Warning** **PICTOGRAM:**

HAZARD STATEMENT(S):
H302: Harmful if swallowed
H315: Causes Skin irritation
H319: Causes serious eye irritation
H332: May Be Harmful if inhaled

PRECAUTIONARY STATEMENT(S):
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P304+P340: IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
P305 +P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.
P337+P313**:** IF eye irritation persists: Get medical advice/attention.

POTENTIAL HEALTH EFFECTS

POTENTIAL HEALTH EFFECTS

EYE CONTACT: Can cause severe eye irritation or damage
INHALATION: Can damage nasal and respiratory passages
INGESTION: Swallowing this product can be irritating and may cause damage to the gastrointestinal tract
SKIN CONTACT: Vapors, liquid and mists are irritants to the skin. Prolonged contact may cause reddening.
SIGNS AND SYMPTOMS OF EXPOSURE: Irritation, pain, coughing, redness of skin.
PHYSICAL HAZARD: Dries to form glass film which can easily cut skin. Spilled material is very slippery. Can etch glass if not promptly removed.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Chemical Name	CAS #	Wt. Range %
POTASSIUM HYDROXIDE	1310-58-3	10 – 20%
2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID	37971-36-1	5 – 10%
1-HYDROXYETHANE-1,1,-DIPHOSPHONIC ACID	2809-21-4	5 – 10%
PYROPHOSPHORIC ACID	7320-34-5	5 – 15%
Balance of formula contains non-regulated, and/or proprietary, ingredients	- -	- -

4. FIRST AID MEASURES:

GENERAL ADVICE: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
EYE CONTACT: Immediately flush eyes with water for at least 15 minutes. Hold eyelids open while flushing the eyes.
INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
INGESTION: If swallowed, do NOT induce vomiting. Give victim lots of water or milk. Get medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.
SKIN CONTACT: Wash with soap and water. Change contaminated clothing. Get medical attention if irritation develops or persists.
AGGRAVATED MEDICAL CONDITIONS: Pre-existing eye, skin or respiratory conditions.
SUPPLEMENTAL HEALTH INFORMATION: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

5. FIRE FIGHTING MEASURES:

EXTINGUISHING MEDIA: Use extinguishing media appropriate for surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES:
Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
COMBUSTION PRODUCTS: None known.

6. ACCIDENTAL RELEASE MEASURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED OR RELEASED: Do not walk through any spills without wearing proper safety attire. High risk of slipping due to leakage/spillage of product. Small spills: Mop up, wipe up or soak up immediately. Large spills: Evacuate area. Contain liquid; transfer to closed poly containers. Or soak up with inert material and shovel into poly drums for disposal.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Do not handle until all safety precautions have been read and understood. Protect from freezing. Use good personal hygiene when handling this product. Wash hands after use, before smoking, or using the toilet. Wear personal protection as required per safety program. Follow all SDS/label precautions even after container is emptied. .

OTHER PRECAUTIONS: For industrial and institutional use only. Keep away from children. Keep containers closed while not in use.

8. EXPOSURE CONTROL/PERSONAL PROTECTION:

EXPOSURE CONTROLS:

	OSHA PEL		ACGIH TLV	
Chemical Name	**TWA**	**STEL**	**TWA**	**STEL**
POTASIIUM HYDROXIDE	2mg/m3		2mg/m3	
Contains no additional substances with occupational exposure limit values.				

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA approved respirator appropriate for vapor concentration at point of use.

VENTILATION: Local exhaust sufficient to keep exposure below TLV.

WORK/HYGENIC PRACTICES: Use good personal hygiene when handling this product. Wash hands after use, before smoking, or using the toilet.

EYE PROTECTION: Use chemical safety goggles and/or full face shield when splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas

PROTECTIVE GLOVES: Rubber or other impervious material with gauntlets. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

OTHER PROTECTIVE EQUIP: Boots, apron, lab coat or coveralls of impervious material, as appropriate to avoid skin contact.

ENGINEERING CONTROLS: Facilities storing or utilizing this material should be equipped with an eye wash facility and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES:

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

a) Appearance: Amber Liquid	**k) Vapor pressure (mm/hg):** No data available
b) Odor: Slight chemical odor	**l) Vapor density (Air = 1):** No data available
d) pH: 10.5 +/- 0.5	**m) Relative density (Specific Gravity):** 1.24
e) Melting point/freezing point: No data available	**n) Water solubility:** Complete
f) Initial boiling point and boiling range: 219°F	**p) Auto-ignition temperature:** n/a
g) Flash point: n/a **Method Used:** n/a	**r) Viscosity:** n/a
h) Evaporation rate: No data available	**-) Pounds Per Gallon:** 10.4
j) Upper/lower flammability or explosive limits: UEL: n/a **LEL:** n/a	**OTHER:** No other data is available for this product. . . . .

10. STABILITY AND REACTIVITY

STABLE: Stable under recommended storage conditions.

INCOMPATIBILITY: Acids, Strong oxidizing agents

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Oxides of Carbon

HAZARDOUS POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID: Contact with incompatible materials.

11. TOXICOLOGICAL INFORMATION: None of the components of this product are listed as carcinogens. No other data available.

12. ECOLOGICAL INFORMATION: Keep out of waterways. No other data available

13. DISPOSAL CONSIDERATIONS: Dilute with large amounts of water and dispose to municipal or industrial waste treatment facility in accordance with applicable regulations.

14. TRANSPORT INFORMATION:

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	-	Non-Regulated Material, Liquid	- -	--

15. REGULATORY INFORMATION: No data available

16. OTHER INFORMATION:

HMIS INFORMATION: HEALTH: 2 FLAMMABILITY: 0 PHYSICAL HAZARD: 0 PROTECTIVE: C

NFPA INFORMATION: TOXICITY: 2 FIRE: 0 REACTIVITY: 0 SPECIAL: N

Safety Data Sheet

SEI-281 Industrial Water Cooling Tower Algaecide

SECTION 1. IDENTIFICATION

Product Identifier	SEI-281 Industrial Water Cooling Tower Algaecide
Other Means of Identification	SEI-281
Product Family	Water Treatment
Recommended Use	Water Cooling Tower Algaecide.
Restrictions on Use	None known.
Manufacturer	Steam Engineering, 204 NE 117th, Vancouver, Washington, 98684, SDS Coordinator, 360-260-8655
Emergency Phone No.	SDS Coordinator Steam Engineering, 360-260-8655
SDS No.	0169

SECTION 2. HAZARD IDENTIFICATION

Classification

Acute toxicity (Oral) - Category 3; Skin corrosion - Category 1B; Serious eye damage - Category 1; Aquatic hazard (Acute) - Category 1; Aquatic hazard (Chronic) - Category 1

Label Elements

Causes severe skin burns and eye damage.
Do not breathe dusts or mists.
Wash hands and skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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 CENTRE/doctor/
Dispose of contents and container in accordance with local, regional, national and international regulations.
Very toxic to aquatic life with long lasting effects.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Water	7732-18-5	85 to 91		
Ammonium, didecyldimethyl-, chloride	7173-51-5	8 to 12		
Ethanol	64-17-5	1 to 3		

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

If symptoms are experienced, move victim 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 centre or doctor for further treatment advice.

Skin Contact

Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash with plenty of lukewarm, gently flowing water for 15-20 minutes. If skin irritation occurs, get medical advice or attention. Wash contaminated clothing before re-use.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. Contact doctor immediately.

Ingestion

Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Immediately call a Poison Centre or doctor.

First-aid Comments

Probable mucosal damage mat contraindicate the use of gastric lavage.

Most Important Symptoms and Effects, Acute and Delayed

Clear, colourless to straw-coloured liquid. Corrosive to the eyes, skin, gastrointestinal tract, and respiratory system.

Immediate Medical Attention and Special Treatment

Target Organs

Eyes, lungs, skin, respiratory system.

Special Instructions

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, alcohol foam, polymer foam or water spray or fog.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Irritating and toxic gases or fumes may be released during a fire.

Special Protective Equipment and Precautions for Fire-fighters

Firefightersshould wear proper protective equipment and self-contained breathing apparatus with full facepiece in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed

containers cool.
Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Increase ventilation to area or move leaking container to a well-ventilated and secure area. Remove or isolate incompatible materials as well as other hazardous materials. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Contain and soak up spill with absorbent that does not react with spilled product.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe in this product. Prevent all skin contact. Do not get in eyes. Do not get in eyes, on skin or on clothing. Do not swallow. Only use where there is adequate ventilation. Avoid release to the environment. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). In the event of a spill or leak, exit the area immediately. Get medical advice or attention for all exposures. Symptoms can be delayed.

Conditions for Safe Storage

Store in an area that is: well-ventilated.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH® TLV®		OSHA PEL		AIHA® WEEL®	
Chemical Name	**TWA**	**STEL [C]**	**TWA**	**Ceiling**	**8-hr TWA**	**Short-term TWA [C]**
Ethanol	1000 ppm			1900 mg/m3		

Appropriate Engineering Controls

Do not allow product to accumulate in the air in work or storage areas, or in confined spaces. Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air. Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Respiratory Protection

If engineering controls and work practices are not effective in controlling inhalation exposure then wear suitable personal protective equipment including approved respiratory protection.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Clear colourless. Particle Size: Not applicable
Odour	Pungent
Odour Threshold	Not available
pH	9 - 12

Melting Point/Freezing Point	Not applicable (melting); Not available (freezing)
Initial Boiling Point/Range	Not available
Flash Point	> 221 °F (closed cup)
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	Not available (upper); Not available (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	> 1
Relative Density (water = 1)	~ 1.0046
Solubility	Soluble in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity	13.61 mm2/s at 20 °C (kinematic); Not available (dynamic)

Other Information

Physical State	Liquid
Molecular Formula	Not available
Molecular Weight	Not available
Bulk Density	Not available
Surface Tension	Not available
Critical Temperature	Not available
Electrical Conductivity	Not available
Vapour Pressure at 50 deg C	Not available
Saturated Vapour Concentration	Not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity

None known.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

Keep away from heat and strong oxidizing agents.

Conditions to Avoid

Keep away from heat and strong oxidizing agents.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide, and toxic hydrogen vapours.

SECTION 11. TOXICOLOGICAL INFORMATION

Information presented below is for the entire product, unless otherwise specified.

Likely Routes of Exposure

Skin contact; eye contact; inhalation.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Ammonium, didecyldimethyl-, chloride		~ 329 mg/kg (rat)	~ 3342 mg/kg (rat)
Ethanol	~ 117-125 mg/L (rat) (4-hour exposure)	~ 10470 mg/kg (rat)	

LC50: Not applicable.

LD50 (oral): Not applicable.

Skin Corrosion/Irritation

Human experience and animal tests show moderate or severe irritation.

Serious Eye Damage/Irritation

May cause serious eye irritation based on information for closely related materials.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May be harmful based on human experience and animal tests.

Skin Absorption

May be harmful based on information for closely related materials.

Ingestion

Toxic, can cause death based on information for closely related materials.

Aspiration Hazard

May be drawn into the lungs (aspirated) if swallowed or vomited.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Harmful. Causes severe effects (serious permanent impairment or life-threatening).

Respiratory and/or Skin Sensitization

No information was located.

Carcinogenicity

Not known to cause cancer.

Reproductive Toxicity

Development of Offspring

No information was located.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic organisms.

Persistence and Degradability

Readily biodegradeable.

Bioaccumulative Potential

This product and its degradation products are not known to bioaccumulate.

Mobility in Soil

No information was located.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

This substance when discarded or disposed of, is a characteristic hazardous waste according to Federal regulation (40 CFR 261) and is assigned the EPA Hazardous Waste Number of D001. The discarding or disposal of this material must be done at a properly permitted facility in accordance with the regulations of 40 CFR 262, 263, 264, and 268. Additionally, the discarding or disposal of this material may be further regulated by state, regional, or local regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. The transportation, storage, treatment and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	1903	Disinfectant Liquid Corrosive (Quaternary Ammonium Compound)	8	II

Environmental Hazards Marine Pollutant (Ammonium, didecyldimethyl-, chloride)

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

USA

Toxic Substances Control Act (TSCA) Section 8(b)

While all ingredients are listed on the TSCA Chemical Inventory, this product is regulated as a pesticide under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and not subject to the TSCA Inventory rules for FIFRA uses.

SECTION 16. OTHER INFORMATION

SDS Prepared By Steam Engineering

Date of Preparation January 26, 2018

Date of Last Revision January 26, 2018

Revision Indicators The following SDS content was changed on January 26, 2018:
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION; Exposure Guidelines.
The following SDS content was changed on January 29, 2018:
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION; Exposure Guidelines.
The following SDS content was changed on January 29, 2018:
SECTION 11. TOXICOLOGICAL INFORMATION; LC50/LD50 values.
The following SDS content was changed on January 29, 2018:
SECTION 11. TOXICOLOGICAL INFORMATION; LC50/LD50 values.
The following SDS content was changed on January 29, 2018:
SECTION 11. TOXICOLOGICAL INFORMATION; LC50/LD50 values.

SAFETY DATA SHEET

SEI-286 Biocide

EPA Reg. No. 1448-283-59618
EPA Est. No. 1770-OR-1

Uses: Cooling Tower Treatment

Use Restrictions: It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

PURE: ☐ LIQUID: ☒

MIXTURE: ☒ SOLID: ☐

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

MANUFACTURER: Steam Engineering
204 N.E. 117th Avenue
Vancouver, WA 98684

INFORMATION: (360) 256-8655 or (800) 346-6152

EMERGENCY PHONE: **INFOTRAC:** (800) 535-5053
PRODUCT NAME: Biocide
PRODUCT NUMBER: SEI-286
DATE PREPARED: 08/17/2015
LAST REVISION: 08/17/2015

2. HAZARDOUS IDENTIFICATION: Note: EPA labels are not subject to GHS ruling. Do not alter EPA Labels.

EMERGENCY OVERVIEW: Corrosive

GHS CLASSIFICATION: Skin Corrosion: (Category 1A), Serious Eye Damage: (Category 1), Acute Toxicity Oral: (Category 4)

GHS Label elements, including precautionary statements

SIGNAL WORD: **Danger** **PICTOGRAM:**

HAZARD STATEMENT(S):

H302: Harmful if swallowed
H314: Causes severe skin burns and eye damage

PRECAUTIONARY STATEMENT(S):

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P304+P340: IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
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 or doctor/ physician.
P405: Store locked up.
P501: Dispose of contents and container in accordance with all local, regional, national and international regulations.

POTENTIAL HEALTH EFFECTS

EYE CONTACT: Vapors, liquid and mists are extremely corrosive to the eyes. Brief contact of the liquid or mists will severely damage the eyes and prolonged contact may cause permanent eye injury which may be followed by blindness.
INHALATION: Irritation, coughing, chest pain, and difficulty in breathing may occur with brief exposure, while prolonged exposure may result in more severe irritation.
INGESTION: Vapors, liquid and mists are extremely corrosive to the mouth and throat. Swallowing the liquid burns the tissues, causes severe abdominal pain, nausea, vomiting and collapse.
SKIN CONTACT: Vapors severely irritate the skin, and liquid and mists will severely burn the skin. Prolonged skin contact will burn or destroy surrounding tissue and death may accompany burns which extend over large portions of the body.
SIGNS AND SYMPTOMS OF EXPOSURE: Irritation, pain, coughing, redness of skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Chemical Name	CAS #	Wt. Range %
WATER	7732-18-5	70 – 80%
Balance of formula contains non-regulated, and/or proprietary, ingredients	- -	- -

While some substances are claimed as trade secret in accordance with the provision of OSHA 29 CFR 1910.1200(i), all known hazards are clearly communicated within this document

4. FIRST AID MEASURES:

GENERAL ADVICE: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
EYE CONTACT: Immediately flush eyes with water for at least 15 minutes. Hold eyelids open while flushing the eyes. Get medical attention.
INHALATION: Remove to fresh air and Keep at rest in a position comfortable for breathing.. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
INGESTION: If swallowed, do NOT induce vomiting. Give victim sips of water or milk. Get medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.
SKIN CONTACT: Wash with soap and water. Change contaminated clothing. Get medical attention if irritation develops or persists.
AGGRAVATED MEDICAL CONDITIONS: Pre-existing eye, skin or respiratory conditions.
SUPPLEMENTAL HEALTH INFORMATION: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

5. FIRE FIGHTING MEASURES:

EXTINGUISHING MEDIA: Use extinguishing media appropriate for surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
COMBUSTION PRODUCTS: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides, oxides

6. ACCIDENTAL RELEASE MEASURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED OR RELEASED: Do not walk through any spills without wearing proper safety attire. High risk of slipping due to leakage/spillage of product. Small spills: Mop up, wipe up or soak up immediately. Large spills: Evacuate area. Contain liquid; transfer to closed poly containers. Or soak up with inert material and shovel into poly drums for disposal. Do not let product enter drains. Discharge into the environment must be avoided. Refer to EPA Label for current disposal information.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Do not handle until all safety precautions have been read and understood. Protect from freezing. Use good personal hygiene when handling this product. Wash hands after use, before smoking, or using the toilet. Wear personal protection as required per safety program. Follow all SDS/label precautions even after container is emptied.

OTHER PRECAUTIONS: For industrial and institutional use only. Keep away from children. Keep containers closed while not in use. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. EXPOSURE CONTROL/PERSONAL PROTECTION:

EXPOSURE CONTROLS: Contains no substances with occupational exposure limit values

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA approved respirator appropriate for vapor concentration at point of use.

VENTILATION: Local exhaust sufficient to keep exposure below TLV.

WORK/HYGENIC PRACTICES: 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.

EYE PROTECTION: Use chemical safety goggles and/or full face shield when splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas

PROTECTIVE GLOVES: Buna-N Rubber, Polyisoprene Latex Rubber, Polypropylene, Polystyrene, Polyurethane, or other impervious material with gauntlets. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

OTHER PROTECTIVE EQUIP: Boots, apron, lab coat or coveralls of impervious material, as appropriate to avoid skin contact.

ENGINEERING CONTROLS: Facilities storing or utilizing this material should be equipped with an eye wash facility and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES:

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

a) Appearance: Clear Colorless	**k) Vapor pressure (mm/hg):** No data available
b) Odor: Pungent, ammoniacal	**l) Vapor density (Air = 1):** No data available
d) pH: 8 - 9	**m) Relative density (Specific Gravity):** 1.03
e) Melting point/freezing point: No data available	**n) Water solubility:** Complete
f) Initial boiling point and boiling range: >212 °F (>100 °C)	**p) Auto-ignition temperature:** n/a
g) Flash point: n/a **Method Used:** n/a	**r) Viscosity:** No data available
h) Evaporation rate: No data available	**-) Pounds Per Gallon:** 8.68
j) Upper/lower flammability or explosive limits: UEL: n/a **LEL:** n/a	**OTHER:** No other data is available for this product. . . . .

10. STABILITY AND REACTIVITY:

STABLE: Stable under recommended storage conditions.

INCOMPATIBILITY: No specific data available

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Should not occur.

HAZARDOUS POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID: Contact with incompatible materials.

11. TOXICOLOGICAL INFORMATION:

None of the components of this product are listed as carcinogens. No other data available.

12. ECOLOGICAL INFORMATION:

This product is toxic to fish and aquatic organisms. Keep out of waterways. No other data available

13. DISPOSAL CONSIDERATIONS:

Refer to EPA Label for current container of product disposal information.

14. TRANSPORT INFORMATION:

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	--	No Regulated Material, Liquid	- -	- -

15. REGULATORY INFORMATION:

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non- pesticide chemicals.. The pesticide label also includes other important information, including directions for use.

16. OTHER INFORMATION:

HMIS INFORMATION: HEALTH: 3 FLAMMABILITY: 1 PHYSICAL HAZARD: 0 PERSONAL PROTECTION : D
NFPA INFORMATION: TOXICITY: 3 FIRE: 1 REACTIVITY: 0

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