SAFETY DATA SHEETS
(SDS)

Prepared By: National Safety Department

SDS INDEX

MATERIAL SAFETY DATA SHEET

Product name:	**CP 601S Elastomeric Firestop Sealant**
Description:	Fire resistant sealant for use in fire rated joint applications
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 703 527 3887 (Other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Siloxanes and silicones, di-Me, terminated	068037-58-1	NE	NE	NE
Siloxanes and silicones, di-Me	063148-62-9	NE	NE	NE
Fumed silica	112945-52-5	NA	NE	NE
Methyltrimethoxysilane	001185-55-3	NE	NE	NE
Calcium carbonate	000471-34-1	NA	NA	NA
Organotitanate	083877-91-2	NE	NE	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable.

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Negligible.
Vapor Density: (air = 1)	Not applicable.	**Vapor Pressure @ 68° F:**	23 mbar.
Boiling Point:	Not applicable.	**VOC Content:**	3.0 g/l
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Negligible.
Specific Gravity:	1.3 – 1.4	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	> 200° F	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Water, CO_2, Dry Chemical, Foam.		
Special Fire Fighting Procedures:	A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Product serves as a fire stopping material.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and amines.		
Decomposition Products:	Thermal decomposition can yield carbon dioxide and carbon fluoride.		
Conditions to Avoid:	Avoid contact with chemical products that could affect product use such as solvents, alkalis, acids and mineral oils.		

HEALTH HAZARD DATA

Known Hazards:	**Acute**: Irritation is possible. **Chronic:** None known or anticipated.
Signs and Symptoms of Exposure:	**Eyes -** Irritation is possible but injury is unlikely. **Skin -** Slight irritation is possible. **Inhalation -** No effects expected. **Ingestion** - Not a likely route of exposure. Effects of ingestion have not been determined. Considered to have a low acute oral toxicity.
Routes of Exposure:	Dermal.
Carcinogenicity:	No ingredients are classified as a carcinogen by IARC, NTP or OSHA.
Medical Conditions Aggravated by Exposure:	Eye, skin, and respiratory conditions.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Call a physician if symptoms occur.
Skin:	Wash with soap and water. Seek medical attention if any effects persist.
Inhalation:	If ill effects occur, move victim to fresh air. Give oxygen and/or artificial respiration if needed. Call a physician.
Ingestion:	Do not induce vomiting unless large amounts are ingested. If conscious, give plenty of water to drink. Never give anything by mouth to an unconscious person. Contact a physician immediately.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses should be worn in most industrial settings.
Skin Protection:	Gloves are recommended. Cloth gloves are suitable.
Respiratory Protection:	None required under normal conditions of use.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry area. Avoid temperature extremes; recommended storage temperature is between 40° and 77° F. For industrial use only. Keep out of reach of children. Use with adequate ventilation. Practice good hygiene; i.e. wash after using and before eating or smoking.
Spill Procedures:	Allow to cure and place in a container for proper disposal in accordance with all applicable local, state, or federal requirements. Not regulated as a hazardous waste according to federal EPA definitions.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 1, Reactivity 0, PPE A
DOT Shipping Name:	Not regulated
IATA / ICAO Shipping Name:	Not regulated
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product does not contain any ingredients which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Safety Data Sheet

RUST-OLEUM CORPORATION
* Trusted Quality Since 1921 * www.rustoleum.com

1. Identification

Product Name: PTOUCH 2X +SSPR 6PK GLOSS REAL ORANGE

Revision Date: 5/15/2015

Product Identifier: 249095

Supercedes Date: 5/6/2015

Product Use/Class: Topcoat/Aerosols

Supplier:
Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Manufacturer:
Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Preparer: Regulatory Department

Emergency Telephone: 24 Hour Hotline: 847-367-7700

2. Hazard Identification

EMERGENCY OVERVIEW: Harmful if swallowed. Extremely flammable liquid and vapor. Vapors may cause flash fire or explosion. Contents Under Pressure. Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. May cause eye, skin, or respiratory tract irritation. KEEP OUT OF REACH OF CHILDREN. Harmful if inhaled. Causes eye irritation. Use ventilation necessary to keep exposures below recommended exposure limits, if any. Vapor Harmful. Causes Eye, Skin, Nose, and Throat Irritation.

Classification

Symbol(s) of Product

Signal Word Danger

Possible Hazards

64% of the mixture consists of ingredient(s) of unknown acute toxicity

GHS HAZARD STATEMENTS

Flammable Aerosol, category 1	H222	Extremely flammable aerosol.
Flammable Liquid, category 1	H224	Extremely flammable liquid and vapour.
Acute Toxicity, Oral, category 5	H303	May be harmful if swallowed.
Acute Toxicity, Dermal, category 5	H313	May be harmful in contact with skin.
Skin Irritation, category 2	H315	Causes skin irritation.
Eye Irritation, category 2	H319	Causes serious eye irritation.
Acute Toxicity, Inhalation, category 4	H332	Harmful if inhaled.
STOT, single exposure, category 3, RTI	H335	May cause respiratory irritation.
STOT, single exposure, category 3, NE	H336	May cause drowsiness or dizziness.
Aspiration Hazard, category 2	H305	May be harmful if swallowed and enters airways

Eye Irritation, category 2B	H320	Causes eye irritation
Flammable Aerosol, category 1	H280	Contains gas under pressure; may explode if heated.
Germ Cell Mutagenicity, category 1B	H340	May cause genetic defects . Classified as mutagenic Category 1 if one ingredient is present at or above 0.1% Applies to liquids, Solids (w/w units) and gases (v/v). The substance may also have its own exposure limit. Routes of exposure are dependant on ingredient form.
Carcinogenicity, category 1B	H350	May cause cancer. Classified as carcinogenic Category 1 on the basis of epidemiological and/or animal data. Mixtures are classified as carcinogenic when at least 1 ingredient has been classified as carcinogenic and is present at 0.1% or above Routes of exposure are dependant on ingredient form.

GHS LABEL PRECAUTIONARY STATEMENTS

P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P375	Fight fire remotely due to the risk of explosion.
P102	Keep out of reach of children.
P103	Read label before use.
P234	Keep only in original container.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash … thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P350	Gently wash with plenty of soap and water.
P374	Fight fire with normal precautions from a reasonable distance.
P402	Store in a dry place.
P410+P412	Protect from sunlight. Do no expose to temperatures exceeding 50°C/ 122°F.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P403+P235	Store in a well-ventilated place. Keep cool.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P362	Take off contaminated clothing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P201	Obtain special instructions before use.
P308+P313	IF exposed or concerned: Get medical advice/attention.

3. Composition/Information On Ingredients

HAZARDOUS SUBSTANCES

Chemical Name	CAS-No.	Wt.% Range	GHS Symbols	GHS Statements
Acetone	67-64-1	25-50	GHS02-GHS07	H225-336-319
Propane	74-98-6	10-25		
n-Butane	106-97-8	2.5-10		
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	2.5-10	GHS08	H340-350
Xylene (mixed isomers)	1330-20-7	2.5-10	GHS02-GHS07	H226-312-332-315
Solvent Naphtha, Light Aromatic	64742-95-6	1.0-2.5	GHS08	H340-350
Barium Sulfate	7727-43-7	1.0-2.5		

1,2,4-Trimethylbenzene	95-63-6	1.0-2.5	GHS02-GHS07	H226-335-332-315-319
Ethylbenzene	100-41-4	1.0-2.5	GHS02-GHS07	H225-332
Titanium Dioxide	13463-67-7	0.1-1.0		

The text for GHS Hazard Statements shown above (if any) is given in the "16. Other Information" section.

4. First-aid Measures

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

FIRST AID - SKIN CONTACT: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

FIRST AID - INHALATION: If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation.

FIRST AID - INGESTION: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention. If swallowed, get medical attention.

5. Fire-fighting Measures

EXTINGUISHING MEDIA: Alcohol Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: FLASH POINT IS LESS THAN 20°F. EXTREMELY FLAMMABLE LIQUID AND VAPOR!Water spray may be ineffective. Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Perforation of the pressurized container may cause bursting of the can. Closed containers may explode when exposed to extreme heat due to buildup of steam. No unusual fire or explosion hazards noted.

SPECIAL FIREFIGHTING PROCEDURES: Evacuate area and fight fire from a safe distance. Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Remove all sources of ignition, ventilate area and remove with inert absorbent and nonsparking tools. Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Ventilate area, isolate spilled material, and remove with inert absorbent. Dispose of contaminated absorbent, container, and unused contents in accordance with local, state, and federal regulations.

7. Handling and Storage

HANDLING: Wash thoroughly after handling. Wash hands before eating. Use only in a well-ventilated area. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Remove contaminated clothing and launder before reuse. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing.
STORAGE: Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Contents under pressure. Do not store above 120 ° F. Store large quantities in buildings designed and protected for storage of NFPA Class I flammable liquids. Contents under pressure. Do not expose to heat or store above 120 ° F. Product should be stored in tightly sealed containers and protected from heat, moisture, and foreign materials. Store in a dry, well ventilated place. Keep container tightly closed when not in use. Keep away from heat, sparks, flame and sources of ignition. Avoid excess heat.

8. Exposure Controls/Personal Protection

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLVTWA	ACGIH TLVSTEL	OSHA PEL-TWA	OSHA PELCEILING
Acetone	67-64-1	40.0	500 ppm	750 ppm	1000 ppm	N.E.
Propane	74-98-6	20.0	1000 ppm	N.E.	1000 ppm	N.E.
n-Butane	106-97-8	10.0	1000 ppm	1000 ppm	N.E.	N.E.

Naphtha, Petroleum, Hydrotreated Light	64742-49-0	10.0	200 mg/m3	N.E.	N.E.	N.E.
Xylene (mixed isomers)	1330-20-7	10.0	100 ppm	150 ppm	100 ppm	N.E.
Solvent Naphtha, Light Aromatic	64742-95-6	5.0	N.E.	N.E.	N.E.	N.E.
Barium Sulfate	7727-43-7	5.0	5 mg/m3 (Inhlalable fraction w/o asbestos and <1% cryst.silica)	N.E.	15 mg/m3 [Total Dust]	N.E.
1,2,4-Trimethylbenzene	95-63-6	5.0	25 ppm (NIOSH REL)	N.E.	N.E.	N.E.
Ethylbenzene	100-41-4	5.0	20 ppm	125 ppm	100 ppm	N.E.
Titanium Dioxide	13463-67-7	1.0	10 mg/m3 (Total Dust)	N.E.	15 mg/m3 [Total Dust]	N.E.

PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation. Provide general dilution of local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

SKIN PROTECTION: Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection. Use gloves to prevent prolonged skin contact.

EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.

OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application. Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications.

HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

9. Physical and Chemical Properties

Appearance:	Aerosolized Mist	**Physical State:**	Liquid
Odor:	Solvent Like	**Odor Threshold:**	N.E.
Relative Density:	0.754	**pH:**	N.A.
Freeze Point, °C:	N.D.	**Viscosity:**	N.D.
Solubility in Water:	Slight	**Partition Coefficient, noctanol/water:**	No Information
Decompostion Temp., °C:	No Information		
Boiling Range, °C:	-11 - 999	**Explosive Limits, vol%:**	0.7 - 13.0
Flammability:	Does not Support Combustion	**Flash Point, °C:**	-105
Evaporation Rate:	Faster than Ether	**Auto-ignition Temp., °C:**	No Information
Vapor Density:	Heavier than Air	**Vapor Pressure:**	N.D.

(See "Other information" Section for abbreviation legend)

10. Stability and Reactivity

CONDITIONS TO AVOID: Avoid temperatures above 120 ° F. Avoid all possible sources of ignition. Avoid contact with strong acid and strong bases.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

HAZARDOUS DECOMPOSITION: By open flame, carbon monoxide and carbon dioxide. When heated to decomposition, it emits acrid smoke and irritating fumes. Contains solvents which may form carbon monoxide, carbon dioxide, and formaldehyde.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

11. Toxicological information

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Causes Serious Eye Irritation

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Substance may cause slight skin irritation. Prolonged or repeated contact may cause skin irritation. May cause skin irritation. Allergic reactions are possible.

EFFECTS OF OVEREXPOSURE - INHALATION: Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs. Prolonged or excessive inhalation may cause respiratory tract irritation.

EFFECTS OF OVEREXPOSURE - INGESTION: Aspiration hazard if swallowed; can enter lungs and cause damage. Harmful if swallowed.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: IARC lists Ethylbenzene as a possible human carcinogen (group 2B). Overexposure to xylene in laboratory animals has been associated with liver abnormalities, kidney, lung, spleen, eye and blood damage as well as reproductive disorders. Effects in humans, due to chronic overexposure, have included liver, cardiac abnormalities and nervous system damage. Contains Titanium Dioxide. Titanium Dioxide is listed as a Group 2B-"Possibly carcinogenic to humans" by IARC. No significant exposure to Titanium Dioxide is thought to occur during the use of products in which Titanium Dioxide is bound to other materials, such as in paints during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of Titanium Dioxide in the formula. (Ref: IARC Monograph, Vol. 93, 2010)May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis, and blurred vision) and/or damage.

PRIMARY ROUTE(S) OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Chemical Name	Oral LD50	Dermal LD50	Vapor LC50
74-98-6	Propane	N.I.	N.I.	658 mg/L Rat
64742-49-0	Naphtha, Petroleum, Hydrotreated Light	>5000 mg/kg Rat	>3160 mg/kg Rabbit	N.I.

1330-20-7 Xylene (mixed isomers) 4300 mg/kg Rat N.I. 47635 mg/L Rat 64742-95-6 Solvent Naphtha, Light Aromatic N.I. >2000 mg/kg Rabbit N.I. 95-63-6 1,2,4-Trimethylbenzene 3280 mg/kg Rat >3160 mg/kg Rabbit N.I. 100-41-4 Ethylbenzene 3500 mg/kg Rat 15354 mg/kg Rabbit 17.2 mg/L Rat 13463-67-7 Titanium Dioxide >10000 mg/kg Rat N.I. N.I.

N.I. - No Information

12. Ecological Information

ECOLOGICAL INFORMATION: Product is a mixture of listed components. Product is a mixture of listed components.

13. Disposal Information

DISPOSAL INFORMATION: Dispose of material in accordance to local, state, and federal allow to enter waterways, wastewater, soil, storm drains or sewer systems.

14. Transport Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)	TDG (Canada)
UN Number:	N.A.	1950	1950	N.A.
Shipping Name:	Paint Products in **Proper** Limited Quantities	Aerosols	Aerosols	Paint Products in Limited Quantities

Hazard Class:	N.A.	2.1	2.1	N.A.
Packing Group:	N.A.	N.A.	N.A.	N.A.
Limited Quantity:	Yes	Yes	Yes	Yes

15. Regulatory Information

U.S. Federal Regulations:

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Pressure Hazard, Acute Health Hazard, Chronic Health Hazard

Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS-No.
Xylene (mixed isomers)	1330-20-7
1,2,4-Trimethylbenzene	95-63-6
Ethylbenzene	100-41-4

Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported

from the United States:

No TSCA 12(b) components exist in this product.

CALIFORNIA PROPOSITION 65:

WARNING: This product contains a substance known to the State of California to cause cancer.

Chemical Name	CAS-No.
Ethylbenzene	100-41-4
Titanium Dioxide	13463-67-7
Crystalline Silica / Quartz	14808-60-7
Benzene	71-43-2
Carbon Black	1333-86-4
Cadmium Compounds	7440-43-9
Lead Compounds	7439-92-1

CALIFORNIA PROPOSITION 65 REPRODUCTIVE TOXINS

WARNING: This product contains a substance known to the State of Cali
harm.

Chemical Name	CAS-No.

Toluene	108-88-3
Benzene	71-43-2
Lead Compounds	7439-92-1
Cadmium Compounds	7440-43-9

International Regulations:

CANADIAN WHMIS:

This SDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

16. Other Information

HMIS RATINGS

Health:	2*	**Flammability:**	4	**Physical Hazard:**	0	**Personal Protection:**	X

CANADIAN WHMIS CLASS: AB5 D2A

NFPA RATINGS

Health:	2	**Flammability:**	4	**Instability**	0

VOLATILE ORGANIC COMPOUNDS, g/L: 503

MSDS REVISION DATE: 5/15/2015

REASON FOR REVISION: No Information

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

H340 May cause genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

H350 May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02

GHS07

GHS08

Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

MATERIAL SAFETY DATA SHEET

Product name:	**Safety Boosters**
Description:	22, 25, and 27 caliber blank cartridges for powder actuated fastening tools
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121; phone 1800 879 8000
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Nitroglycerin	00055-63-0	0.46 mg/m^3 (S)	NE	2 mg/m^3 (S)
Nitrocellulose	09004-70-0	NE	NE	NE
Lead styphnate	15245-44-0	0.05 mg/m^3 *	0.05 mg/m^3 *	NE
Barium nitrate	10022-31-8	0.5 mg/m^3	0.5 mg/m^3	NE
Tetracene	00109-27-3	NE	NE	NE

Abbreviations / Symbols: * exposure limit for metallic lead. **NE** = None Established. **NA** = Not Applicable. **(S)** indicates exposure should be controlled for the cutaneous routes including the mucous membranes, eyes, and skin. Airborne exposures as well as direct contact must be considered.

PHYSICAL DATA

Appearance:	Blank brass cartridges.	**Odor:**	None.
Vapor Density: (air = 1)	Not applicable.	**Vapor Pressure:**	Not applicable.
Boiling Point:	Not applicable.	**VOC Content:**	Not applicable.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Not applicable.
Specific Gravity:	Not applicable.	**pH:**	Not applicable.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Water.		
Special Fire Fighting Procedures:	Flood area with water or keep cartridges cool with water spray.		
Unusual Fire and Explosion Hazards:	Cartridges can blast if exposed to temperatures > 160ºC. Mass detonation will not occur.		

REACTIVITY DATA

Hazardous Polymerization:	Will not occur.	**Stability:**	Stable.
Incompatibility:	Strong acids and oxidizing agents.		
Decomposition Products:	Oxides of nitrogen, oxides of carbon, acrid fumes and lead oxide.		
Conditions to Avoid:	Acids, excessive heat, crushing, and electrical currents.		

HEALTH HAZARD DATA

Known Hazards:	OSHA has established an action level of 0.03 mg/m^3 for lead. Exposures that exceed recommended limits for lead may be possible under certain conditions such as excessive firing with little air movement and/or firing in small enclosed work areas. Chronic (long-term) overexposure to lead can result in damage to blood-forming, nervous, urinary and reproductive systems.
Signs and Symptoms of Exposure:	Excessive exposure to gases might cause irritation to the eyes, skin, and respiratory system. Adverse health effects are not expected from acute exposure to fumes and gases; however, adequate ventilation, personal protective equipment, and/or good personal hygiene practices are essential to keep exposure to a minimum.

Routes of Exposure:	Dermal. Inhalation.
Carcinogenicity:	Organic lead compounds are not classified by IARC or NTP as carcinogens. Lead styphnate is converted to metallic lead and lead oxide during combustion. Metallic lead and lead oxide have not been tested adequately.
Medical Conditions Aggravated by Exposure:	None anticipated.

EMERGENCY AND FIRST AID PROCEDURES	
Eyes:	If irritation occurs, flush with plenty of water. Consult a physician if symptoms persist.
Skin:	Practice good hygiene; i.e. wash with soap and water after using and before smoking/eating.
Inhalation:	Move victim to fresh air. Get medical attention if symptoms persist.
Ingestion:	Get immediate medical attention.
Other:	Referral to a physician is recommended if there is any question about the seriusness of the injury/exposure.
CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT	
Ventilation:	General (i.e., natural or mechanically induced fresh air movements that maintain vapor concentrations below recommended exposure limits).
Eye Protection:	Suitable safety glasses with side-shields, or safety goggles.
Skin Protection:	Cleaning powder actuated tools can result in some exposure to lead compounds. Impermeable gloves are recommended. Wash hands thoroughly when finished and before eating or smoking.
Respiratory Protection:	Not normally required. Where air movement is inadequate to maintain exposure below recommended levels, wear a high efficiency particulate respirator.
Other:	Hearing protection should be worn when firing powder actuated tools
PRECAUTIONS FOR SAFE HANDLING AND USE	
Handling and Storing Precautions:	Store in a cool dry place. Do not crush or drop. Keep away from excessive heat , electrical current, strong acids and oxidizers. NFPA 495 requires 15 feet separation (or 1-hour firewall) from flammable liquids, flammable solids, and oxidizers. For industrial use only. Keep out of reach of children. Use with adequate ventilation. Practice good hygiene; i.e. wash after using and before eating or smoking.
Other Precautions::	Use only in powder actuated tools designed to handle these boosters. Construction industry employees must be properly trained as prescribed by OSHA regulations 29 CFR 1926.302 (e). All employees should be familiar with the safe operating procedures and requirements for powder operated tools as described in ANSI A10.3 and OSHA 29 CFR 1910.243 (d).
REGULATORY INFORMATION	
Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 1, Reactivity 3, PPE B (Glasses, Gloves)
DOT Shipping Name:	Limited Quantity - LQ
ICAO / IATA Shipping Name:	Cartridges. Power device, Class 1.4S, UN 0323
TSCA Inventory Status:	Chemical components listed on TSCA inventory.

SARA Title III, Section 313:	This product contains < 1% lead styphnate (CAS No. 15245-44-0), < 0.1% barium nitrate (CAS No. 10022-31-8), and 5 - 11% nitroglycerin (CAS No. 55-63-0) which are subject to the reporting according to Section 313 of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.
Waste Disposal Methods:	Misfires should be stored in a closed container until disposal or as otherwise required by local, state, and federal safety, health and environmental regulations. The recommended disposal method is an explosives incinerator.
EPA Waste Code(s):	D008

CONTACTS

Customer Service:	1 800 879 8000
Technical Service:	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x1003704)
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

MATERIAL SAFETY DATA SHEET

Product name:	**Nickel-Cadmium Battery**
Description:	Sealed metallic cylinders in a plastic case
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

This product is regarded as an "Article" by definition under OSHA Regulation, 29CFR 1910.1200(c). This product contains nickel, cadmium and cobalt compounds as well as potassium hydroxide. The physical form of the product, however, precludes exposure to workers under normal conditions of use.

PHYSICAL DATA

Appearance:	Black plastic case.	**Odor:**	Not applicable.
Vapor Density: (air = 1)	Not applicable.	**Vapor Pressure:**	Not applicable.
Boiling Point:	Not applicable.	**VOC Content:**	Not applicable.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Not applicable.
Specific Gravity:	Not determined.	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Carbon Dioxide, Dry Chemical, Foam, Water.		
Special Fire Fighting Procedures:	Not known. Always use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None expected.		

REACTIVITY DATA

Hazardous Polymerization:	Will not occur.	**Stability:**	Stable.
Incompatibility:	None known.		
Decomposition Products:	Thermal decomposition can yield toxic and acrid gases.		
Conditions to Avoid:	See "Handling and Storing Precautions" below.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	None anticipated.
Routes of Exposure:	None anticipated from proper use of this product.
Carcinogenicity:	Not applicable. See spill procedures.
Medical Conditions Aggravated by Exposure:	None expected.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation:	Not applicable.	**Ingestion:**	Not applicable.
Eyes:	Not applicable. Refer to spill procedures below.		
Skin:	Not applicable. Refer to spill procedures below.		

Other:	None known.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General
Eye Protection:	Not applicable for battery packs; however, safety glasses (side shields recommended) or safety goggles are recommended while using most powered hand tools.
Skin Protection:	Not required
Respiratory Protection:	Not normally required. However, in some instances, dusts generated while drilling may necessitate the use of respiratory protection.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry place less than 100° F. Exposure to excessive heat and humidity and storage above 100° F will shorten the shelf life of this product.
Spill Procedures:	If the battery integrity is destroyed by accident, (for example crushing) and the contents are released, do not touch spilled material. Take up with sand or other absorbent and place in container for disposal. Contact with battery contents may cause skin irritation and/or corrosive eye damage. If skin contact occurs, wash affected areas thoroughly with soap and water. Get medical attention if irritation develops. If eye contact occurs, flush thoroughly with running water for at least 15 minutes, while holding eyelids open. Get prompt medical attention. Cadmium, nickel and their compounds are considered potential human carcinogens by the National Toxicology Program and the International Agency for Research on Cancer. The Occupational Safety and Health Administration has proposed regulating cadmium and its compounds as carcinogens.

REGULATORY INFORMATION

Hazard Communication:	This product is regarded as an "Article" by OSHA definition.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE A
ICAO / IATA Shipping Name:	Not regulated.
DOT Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product is considered to be an "Article", therefore, it is not subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	N/A
Waste Disposal Methods:	Batteries may be returned to Hilti by contacting the local salesperson, returning it to the local Hilti Center, or calling the toll free number (1-800-879-8000) where a Customer Service Representative will provide return instructions. DO NOT DISPOSE IN THE TRASH. Place tape over any exposed terminals to prevent inadvertent short-circuit during transportation.

CONTACTS

Customer Service:	1 800 879 8000	Technical Service:	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

MATERIAL SAFETY DATA SHEET
Tuf-Glide™ Thread Seal Tape with PTFE

SECTION I – PRODUCT INFORMATION

Distributor's name: Allied Rubber & Gasket Company
2610 Commerce Way
Vista, Ca 92081
In case of emergency: Contact your local poison control center
For information call: (800) 854-1015
Date prepared: 1/23/2007
Product name: Tuf-Glide™ Teflon Tape

SECTION II – HAZARDOUS INGREDIENTS

Hazardous Components: Polytetrafluroethylene (PTFE) (Specific Chemical Identity)
OSHA PEL: Not Applicable
ACHIH TLV: Not Applicable
%: 100%
CAS No.: 9002-84

PTFE tape, as such, is not a hazardous material. It is a processed solid polymer.

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling point:	Not Applicable	**Vapor pressure:**	Not Applicable
Vapor Density:	Not Applicable	**Solubility in Water:**	Insoluble
Appearance & odor:	White & None	**Specific gravity (H2O = 1):**	2.1 – 2.2
Melting point:	-341ºC (642ºF)	**Evaporation Rate:**	Not Applicable

SECTION IV – FIRE AND EXPLOSTION DATA

Flash Point:	Not Applicable	**Flammable Limits:**	Not Applicable
LEL:	Not Applicable	**UEL:**	Not Applicable

Extinguishing Media: Not Applicable; Use media suitable for surrounding fire
Specific Fire Fighting Procedures: Self contained breathing apparatus with full face piece and protective clothing if involved with other materials
Unusual Fire & Explosion hazards: Product will emit toxic fumes at high temperatures:
Above 800ºF – Tetrafluroethylene
Above 825ºF – Hexafluropropylene

Above 885ºF – Perfluroisbutylene
Above 930ºF – Carbon Fluoride

SECTION V– REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Heating above 750ºF for prolonged periods
Instability (materials to avoid):	Molten alkali metals; interhalogen compounds
Hazardous Decomposition or	See section 4
Hazardous Polymerization:	Will not occur
Conditions to avoid:	None

Routes of Entry:

Inhalation?	No toxic effects
Skin?	Non-irritating/absorbing
Ingestion?	PTFE shown to be inert when ingested by rats

Health Hazards

Acute:	Flu like symptoms
Chronic:	Could be fatal

Carcinogenicity:

NTP?	No
ARC monographs?	No
OSHA regulated?	No

Signs & Symptoms of Exposure:	Flu like fever
Medical Conditions Generally Aggravated:	Respiratory Inflammation
Emergency & First Aid Procedures:	Move to fresh air, refer to physician

SECTION VI – PRECAUTIONS FOR SAFE HANDLING & USE

Steps to be taken in case material is released or Spilled:	Sweep up to prevent spillage on tape
Waste disposal method:	No unusual precautions
Precautions to be taken in handling & storage:	No unusual precautions
Other precautions:	No unusual precautions

SECTION VII – CONTROL MEASURES

Respiratory Protection: Not Applicable except in Section 4

Ventilation: Not Applicable **Protective Gloves:** Not Applicable
Eye Protection: Not Applicable
Other Protective Clothing or Equipment: Not Applicable
Work/Hygienic Practices: No smoking while handling material; Clean spills immediately

SECTION VIII – REGULATORY INFORMATION

OSHA Hazard Status: This product is not considered to be hazardous as defined by the U.S. OSHA HCS (29 CFR 1910.1200).

EPA SARA sec. 311/312 Hazard Categories: Not Applicable.

Toxic Substances Control Act (TSCA): All ingredients contained in this product are listed on the U.S. EPA TSCA Chemical Substance Inventory.

HMIS Rating: Health 0, Flammability 1, Reactivity 0

NFPA (704) Rating: Health 1, Flammability 1, Reactivity 0

Please note: If you repackage or otherwise redistribute this product to industrial customers, a notice similar to this one should be sent to that customer.

Disclaimer

The information contained herein is accurate and reliable as of the date issued to the best of the manufacturer's knowledge. **ARGCO** *doesn't warrant or guarantee its accuracy or reliability and shall*

HAZARD COMMUNICATION SAFETY DATA SHEET
TUF-LUBE™ COUPLING GREASE

SECTION 1 – IDENTIFICATION

Distributor's name: Allied Rubber & Gasket Company, Inc. - ARGCO
5816 Dryden Place #101
Carlsdad, CA 92008
For information call: (800) 854-1015
Date prepared: September 25, 2000; revised 4/30/2015
Product name: Tuf-Lube™ Coupling Grease
Recommended Use: Lubrication for Grooved Coupling Gaskets

SECTION 2 – HAZARDS IDENTIFICATION

SLIGHT IRRITANT
(SKIN AND EYE)

Non-toxic; basically non-hazardous.
OSHA Status: Contains no "hazardous chemicals" as defi ned by OSHA Hazard Communication Standard, 29CFR, 1910.1200
TSCA Status: All ingredients listed.

SECTION 3 – COMPOSITION/INGREDIENTS

Boiling point:	Not applicable
Vapor Density:	Not applicable
Vapor pressure:	Not applicable
Solubility in Water:	Appreciable
Appearance & odor:	Tan colored paste – mild odor
Specifi c gravity (H2O = 1):	1.06
Melting point:	Not applicable
Evaporation Rate:	Not applicable

SECTION 4 – FIRST AID MEASURES

Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation: Move to fresh air.

Ingestion: Clean mouth with water and aft erwards drink plenty of water.

Notes to Physician: Notes to Physician Treat symptomatically.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point:	None
Flammable Limits:	Not applicable
Extinguishing Media:	Not applicable
Special Fire Fighting Method:	Not applicable
Unusual fi re & explosion hazards:	None
LEL:	Not applicable
UEL:	Not applicable

SECTION 6 – ACCIDENTAL RELEASE

Spilled: Wipe up with paper towels or cloth and place in appropriate containers for disposal.
Material is non-hazardous waste.
Storage Temperature: Ambient

SECTION 7 – HANDLING AND STORAGE

No special handling or storage procedures required.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

Respiratory Protection:	None required
Engineering Controls:	None required.
Gloves:	Recommended to prevent possible dermal irritation.
Safety Glasses:	Recommended to prevent possible eye irritation.

Other protective clothing or equipment: None required

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Odor Th reshold: pH:
Odor:

Autoignition Temperature:
Boiling Point/Boiling Range
Melting Point/Range:
Physical State:
Flash Point:
Flashpoint Method:
Water Solubility:
Evaporation Rate:
Vapor Density:

SECTION 10 – STABILITY AND REACTIVITY DATA

Stability:	Stable
Conditions to avoid:	None
Hazardous Decomposition or Byproducts:	None known.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Not applicable
Materials to Avoid:	None

SECTION 11 - TOXICOLOGICAL INFORMATION

Eye Contact:	May cause slight irritation.
Skin Contact:	May cause slight irritation to persons sensitive to soap products.
Inhalation:	Non-hazardous by inhalation.
Ingestion:	Unlikely to occur.

SECTION 12 - ECOLOGICAL INFORMATION

Th e environmental impact of this product has not been fully investigated.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with federal, state, and local regulations

SECTION 14 - TRANSPORT INFORMATION

Product is not regulated.

SECTION 15 - REGULATORY INFORMATION

CERCLA: Not reportable.
SARA Title III: No reportable ingredients.
Sections 302,311,312,313: No reportable ingredients.
RCRA Status: Not regulated.

SECTION 16 - OTHER INFORMATION

Date Prepared: 4/30/2015

Disclaimer

Th e information contained herein is accurate and reliable as of the date issued to the best of the manufacturer's knowledge. ARGCO doesn't warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising from the use thereof. It is the user's responsibility to satisfy itself that the information off ered for its consideration is suitable for its particular use.

END OF SDS

SAFETY DATA SHEET

1. Identification

Product identifier **MAP-Pro™ Premium Hand Torch Fuel**

Other means of identification

SDS number WC001

Product code Varies **Recommended use**

Hand Torch Fuel

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Worthington Cylinder Corporation

Address 300 E. Breed St., Chilton, WI 5301
United States

Contact person Ann Stiefvater

E-mail address Ann.Stiefvater@worthingtonindustries.com

Telephone number 1-920-849-1740

Emergency telephone number 1-703-527-3887 International / CHEMTREC 1-800-424-9300 Domestic

2. Hazard(s) identification

Physical hazards Flammable gases Category 1

Gases under pressure Compressed gas

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Extremely flammable gas. Contains gas under pressure; may explode if heated.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

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

Disposal Dispose of waste and residues in accordance with local authority requirements. **Hazard(s) not otherwise classified (HNOC)** May displace oxygen and cause rapid suffocation.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Propylene		115-07-1	99.5 - 100

Impurities

Chemical name	CAS number	%
Propane	74-98-6	0 - 0.5

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

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists. If frostbite occurs, immerse involved area in warm water (between 100 F/38 C and 110 F/43 C, not exceeding 112 F/44 C). Keep immersed for 20 to 40 minutes. Seek medical assistance.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Ingestion is not a typical route of exposure for gases or liquefied gases.

Most important symptoms/effects, acute and delayed Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. May cause drowsiness or dizziness.

Indication of immediate medical attention and special treatment needed Exposure may aggravate pre-existing respiratory disorders. Treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Dry chemical, CO2, water spray, fog, or foam.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Move container from fire area if it can be done without risk.

Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Extremely flammable gas.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away.

Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8).

Methods and materials for containment and cleaning up Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel. For waste disposal, see Section 13 of the SDS.

Environmental precautions Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

7. Handling and storage

Precautions for safe handling Eliminate all sources of ignition. Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Do not breathe gas. Do not get in eyes, on skin, on clothing. Use only with adequate ventilation.

Conditions for safe storage, including any incompatibilities Store in accordance with local, regional, national, and international regulations. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry, well-ventilated place. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

8. Exposure controls/personal protection

Occupational exposure limits

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

Impurities	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m3 1000 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Propylene (CAS 115-07-1)	TWA	500 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Impurities	Type	Value
Propane (CAS 74-98-6)	TWA	1800 mg/m3 1000 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Follow standard monitoring procedures.

Appropriate engineering controls Provide adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear approved safety glasses or goggles.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear protective clothing appropriate for the risk of exposure.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Appearance Colorless liquefied gas.

Physical state Gas.

Form Compressed liquefied gas.

Color Colorless

Odor Hydrocarbon or mercaptan if odorized.

Odor threshold Not available.

pH Not applicable.

Melting point/freezing point -301 °F (-185 °C)

Flash point	-162.0 °F (-107.8 °C)
Evaporation rate	Not applicable.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	2 %
Flammability limit - upper (%)	11 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	109.73 PSIG (21°C)
Vapor density	1.5 (0°C)
Relative density	0.52 (liquid)
Solubility(ies)	
Solubility (water)	Slightly soluble in water.
Partition coefficient (n-octanol/water)	1.77
Auto-ignition temperature	927 °F (497.22 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
VOC (Weight %)	100 %

10. Stability and reactivity

Reactivity	The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Polymerization will not occur.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents. Strong acids. Halogens.
Hazardous decomposition products	Carbon oxides. Hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Not likely, due to the form of the product.
Inhalation	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Symptoms related to the physical, chemical and toxicological characteristics	Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. May cause drowsiness or dizziness.
Acute toxicity	High concentration: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Components	**Species**	**Test Results**
Propylene (CAS 115-07-1)		

Acute

Inhalation

LC50

	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours

Skin corrosion/irritation Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Serious eye damage/eye Direct contact with liquefied gas may cause eye damage from frostbite.

Information on toxicological effects

irritation

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified. **Carcinogenicity** Not classified.

IARC Monographs. Overall Evaluation of Carcinogenicity

Propylene (CAS 115-07-1) 3 Not classifiable as to carcinogenicity to humans. **Reproductive toxicity** Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not classified.

Chronic effects May cause central nervous system effects.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Persistence and degradability The product is readily biodegradable.

Bioaccumulative potential The product is not expected to bioaccumulate.

Partition coefficient n-octanol / water (log Kow)

Propylene (CAS 115-07-1)	1.77
Propane (CAS 74-98-6)	2.36

Mobility in soil May evaporate quickly.

Mobility in general May evaporate quickly. **Other adverse effects** None known.

13. Disposal considerations

Disposal instructions Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1077

UN proper shipping name Propylene

Transport hazard class(es)

Class 2.1

Subsidiary risk -
Packing group Not applicable.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions 19, T50
Packaging exceptions 306
Packaging non bulk 304
Packaging bulk 314, 315

IATA

UN number UN1077
UN proper shipping name Propylene
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1
Packing group Not applicable.
Environmental hazards No.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1077
UN proper shipping name Propylene
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1
Packing group Not applicable.
Environmental hazards
Marine pollutant No.
EmS F-D, S-U
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Not applicable. **Annex II of MARPOL 73/78 and the IBC Code**

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

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

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Propane (CAS 74-98-6)	LISTED
Propylene (CAS 115-07-1)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Propylene	115-07-1	99.5 - 100

Other federal regulations

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

Not regulated.

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

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

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

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Rhode Island RTK

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

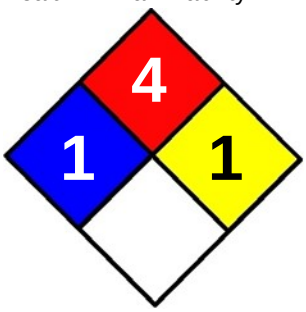
16. Other information, including date of preparation or last revision

Issue date 07-December-2012
Revision date 28-April-2014
Version # 02

Further information

HMIS® is a registered trade and service mark of the NPCA.
HMIS Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard.
Health: 1. Flammability: 4. Physical hazard: 1.

NFPA Ratings



Disclaimer

All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.

PRODUCT SAFETY INFORMATION SHEET

This is a condensed document providing safety and health information pertinent to the product. For a complete regulatory MSDS please contact your Tnemec Representative at www.tnemec.com or 1-800-TNEMEC1.

Preparation Date: 22-Sep-2009 **Revision Date:** 22-Sep-2009 **Revision Number:** 0

2. HAZARDS IDENTIFICATION

Emergency Overview DANGER!

FLAMMABLE LIQUID AND VAPOR.
HARMFUL IF INHALED.
HARMFUL OR FATAL IF SWALLOWED.
MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA.
MAY CAUSE EYE, SKIN, NOSE, THROAT AND RESPIRATORY TRACT IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

Potential Health Effects

Principle Routes of Exposure Eye contact, Inhalation, Skin contact.

Acute Effects

Eyes Moderately irritating to the eyes.
Skin Irritating to skin.
Inhalation Irritating to respiratory system. **Ingestion** May be harmful if swallowed.

Chronic Effects

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Cancer hazard. Contains coal tar which can cause cancer. (Risk of cancer depends on duration and level of exposure.)

Target Organ Effects

Bladder, Central nervous system, Central Vascular System, Eyes, Kidney, Liver, Lungs, Respiratory system, Skin

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

Component	CAS-No	Weight %
REFINED COAL TAR PITCH (CONTAINS PAH'S)	65996-93-2	30 - 60
BARIUM SULFATE (TOTAL DUST)	7727-43-7	10 - 30
TALC (RESPIRABLE DUST)	14807-96-6	10 - 30
XYLENE	1330-20-7	10 - 30
TOLUENE	108-88-3	5 - 10
ETHYL BENZENE	100-41-4	1 - 5

4. FIRST AID MEASURES

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water.

Ingestion If swallowed, do not induce vomiting. Get medical attention immediately.

Inhalation Move to fresh air. Oxygen or artificial respiration if needed.

5. FIRE-FIGHTING MEASURES

Flammable Properties Flammable.

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Contact with water may cause violent frothing. Use: Carbon dioxide (CO2) - Foam - Dry chemical **Hazardous Decomposition Products** Oxides of carbon, hydrocarbons.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapours. In the event of fire and/or explosion do not breathe fumes.

Protective Equipment and Precautions for Firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. May cause heat and pressure build-up in closed containers. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods for Cleaning Up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Handling

Close container after each use. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Storage

Keep away from heat, sparks and flame. VAPORS MAY CAUSE FLASH FIRE. Use only in an area containing flame proof equipment. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Prevent build-up of vapors by opening all windows and doors to achieve cross ventilation.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	Quebec TWAEV	Ontario TWAEV	Mexico OEL (TWA)
REFINED COAL TAR PITCH (CONTAINS PAH'S)	TWA: 0.2 mg/m^3	TWA: 0.2 mg/m^3	TWA: 0.2 mg/m^3	TWA: 0.2 mg/m^3	TWA: 0.002 mg/m^3 TWA: 0.02 mg/m^3 STEL: 0.015 ppm STEL: 0.03 mg/m^3
BARIUM SULFATE (TOTAL DUST)	TWA: 10 mg/m^3 TWA: 0.5 mg/m^3	TWA: 5 mg/m^3 TWA: 10 mg/m^3 TWA: 15 mg/m^3	TWA: 10 ppm TWA: 5 ppm TWA: 0.5 mg/m^3	TWA: 10 mg/m^3	TWA: 0.5 mg/m^3
TALC (RESPIRABLE DUST)	TWA: 2 mg/m^3	TWA: 2 mg/m^3	TWA: 3 mg/m^3	TWA: 2 mg/m^3	TWA: 2 mg/m^3
XYLENE	TWA: 100 ppm STEL: 150 ppm	TWA: 435 mg/m^3 TWA: 100 ppm STEL: 150 ppm STEL: 655 mg/m^3	TWA: 434 mg/m^3 TWA: 100 ppm STEL: 150 ppm STEL: 651 mg/m^3	TWA: 100 ppm TWA: 435 mg/m^3 STEL: 150 ppm STEL: 650 mg/m^3	TWA: 435 mg/m^3 TWA: 100 ppm STEL: 150 ppm STEL: 655 mg/m^3
TOLUENE	TWA: 20 ppm	TWA: 375 mg/m^3 TWA: 100 ppm STEL: 150 ppm STEL: 560 mg/m^3 TWA: 200 ppm Ceiling: 300 ppm	TWA: 50 ppm TWA: 188 mg/m^3 Skin	TWA: 50 ppm	TWA: 50 ppm TWA: 188 mg/m^3
ETHYL BENZENE	TWA: 100 ppm STEL: 125 ppm	TWA: 435 mg/m^3 TWA: 100 ppm STEL: 545 mg/m^3 STEL: 125 ppm	TWA: 434 mg/m^3 TWA: 100 ppm STEL: 125 ppm STEL: 543 mg/m^3	TWA: 100 ppm TWA: 435 mg/m^3 STEL: 125 ppm STEL: 540 mg/m^3	TWA: 100 ppm TWA: 435 mg/m^3 STEL: 125 ppm STEL: 545 mg/m^3

Engineering Measures Ensure adequate ventilation, especially in confined areas

Personal Protective Equipment

Skin Protection	Lightweight protective clothing, Apron, Impervious gloves
Eye/face Protection	If splashes are likely to occur, wear Goggles.
Respiratory Protection	**Use only with adequate ventilation.** Do not breathe dust, vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash Point	27°C / 80.0°F	**Method**	Pensky Martens - Closed Cup
Boiling Point/Range	110 - 142°C / 230.0 - 288.0°F	**Upper Exposure Limits**	No information available
Lower Exposure Limits	No information available	**Evaporation Rate**	No information available
Vapour Pressure	No information available	**Vapour Density**	No information available
Specific Gravity	1.57008	**Density**	13.06539
VOC Content (lbs/gal)	2.693	**% Volatile by Weight**	20.6100
% Volatile by Volume	36.5613		

10. STABILITY AND REACTIVITY

Chemical stability	Stable.	**Conditions to Avoid**	Heat, flames and sparks.
Incompatible Products	Strong oxidizing agents.	**Possibility of Hazardous Reactions**	None under normal processing

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.
Contaminated Packaging	Empty containers should be taken for local recycling, recovery or waste disposal

16. OTHER INFORMATION

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values
XYLENE	1330-20-7	10 - 30	1.0
TOLUENE	108-88-3	5 - 10	1.0
ETHYL BENZENE	100-41-4	1 - 5	0.1

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) This product contains the following HAPs:

Component
XYLENE
TOLUENE
ETHYL BENZENE

HMIS **Health** 2 **Flammability** 3 **Reactivity** 1

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

MATERIAL SAFETY DATA SHEET **CODE: M/L 1134**

This Material Safety Data Sheet complies with the U.S. OSHA Hazard Communication Standard 29CFR 1910.1200

PRODUCT: LENOX PASTE FLUX

NFPA/HMIS HAZARD CODES: HEALTH: 1/1 FIRE: 0/0 REACTIVITY: 0/0 SPECIAL

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

SECTION I

MANUFACTURER: Lenox
ADDRESS: 1690 Lowery Street
Winston-Salem, NC 27101
PHONE: (336) 777-8600

ISSUE DATE: May 2008

SECTION II HAZARDOUS INGREDIENTS

INGREDIENTS	CAS NO.	PERCENT	OSHA PEL	ACGIH TLV
Petrolatum	8009-03-8	70.8	N/A	N/A
Zinc Chloride	07646-85-7	25.3	1mg/m3	1mg/m3
Moisture, as water		3.9		

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: Amber colored jelly
BOILING POINT: 74° C
VAPOR PRESSURE: 10MM Hg
VAPOR DENSITY: NA
SOLUBILITY IN H2O: NO
SPECIFIC GRAVITY: 0.9
MELTING POINT: 67° C
EVAPORATION RATE: NA

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 180°C
FLAMMABLE LIMITS: NA
AUTO IGNITION TEMPERATURE: NA
EXTINGUISHING MEDIUM: No Preference
SPECIAL FIRE FIGHTING PROCEDURES: None
UNUSUAL FIRE & EXPLOSIVE CONDITIONS: None

SECTION V REACTIVITY DATA

STABILITY: Stable
CONDITIONS TO AVOID: NA **INCOMPATIBILITIES**: None
HAZARDOUS DECOMPOSITION: None
HAZARDOUS POLYMERIZATION: Will not occur.

ROUTES OF ENTRY: inhalation (fume), ingestion, dermal.
SYMPTOMS & EFFECT OF OVEREXPOSURE:
Acute: Inhalation can cause irritation & damage to eyes, lungs, mucous & mucous membranes. Skin contact can cause ulceration of the skin.
Chronic: Irritation of the eyes, skin and mucous membranes.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Skin conditions or respiratory problems.
CARCINOGENICITY: Not listed.
EMERGENCY AND FIRST AID PRCEDURES:
EYES: Flush with water for 10 minutes. Obtain immediate medical attention.
SKIN: Wash thoroughly with water; If irritation develops, obtain medical attention.
ACUTE INHALATION: Remove to fresh air. Obtain immediate medical attention.
INGESTION: Give water; Obtain immediate medical attention.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE THIS MATERIAL IS RELEASED OR SPILLED:	Normal clean-up procedures are sufficient. Protect skin from exposure during the procedure.
WASTE DISPOSAL METHOD:	Permitted landfill, check local ordinances.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:	Store below melting temperature: do not expose to heat in storage.
OTHER PRECAUTIONS:	None

SECTION VIII CONTROL MEASURES

RESPIRATORY PROTECTION:	NIOSH Approved Respirator
VENTILATION:	Good general dilution ventilation
PROTECTIVE GLOVES:	Recommended for prolonged contact/heat.
EYE PROTECTION:	Safety glasses or goggles are recommended.
OTHER PROTECTIVE EQUIPMENT:	Safety equipment should be worn as appropriate for the work environment; includes, apron, safety goggles.
WORK/HYGIENIC PRACTICES:	Wash hands thoroughly after use to prevent exposure to the eyes or skin.

SECTION IX UNITED STATES SARA TITLE III INFORMATION

This product/mixture contains the following toxic chemical(s) subject to the reporting of Section 313 of the Title of the U.S. Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. Percent by weight of each toxic chemical abstract system (CAS) number are to be found in Section II of this Material Safety Data Sheet.

CHEMICAL NAME	EHS RQ (LBS)	EH TPQ (LBS)	SEC. 313	313 CATEGORY	311/312 CATEGORIES
	*1	*2	*3	*4	*5
Zinc Chloride	1,000	1,000	yes	yes	H-1

***1=**Reportable quantity of extremely hazardous material substance, Section 302
*2=Threshold planning quantity, extremely hazardous substance, Section 302
*3=Toxic chemical list, Section 313.
*4**=**Chemical category as required by Section 313 (40 CFR 372.42). Subject to annual release reporting requirements.
*5=Hazard category as required by SARA Section 311/312 reporting:

Health H-1=Immediate (ACUTE) Health Hazard
H-2=Delayed (CHRONIC) Health Hazard
Physical P-3= Fire Hazard
P-4= Sudden Release of Pressure Hazard

P-5= Reactive Hazard

SECTION X TRANSPORTATION AND DISPOSAL CONSIDERATIONS

D.O.T. PROPER SHIPPING NAME: Non-hazardous
WASTE DISPOSAL METHOD: Dispose of in accordance with EPA regulations

SECTION XI OTHER INFORMATION

VOC CONTENT NONE

This Material Safety Data Sheet is offered solely for your information, consideration and investigation. Lenox provides no warranties, either express or implied, and assumes no responsibilities for the accuracy or completeness of the data contained in this document. The data in this Material Safety Data Sheet relates only to this product and does not relate to use in combination with any other material or in any process.

Rev 004 Date:
1/15/10

M/L 1134 **2**

MATERIAL SAFETY DATA SHEET

Product name: **FS-ONE High Performance Intumescent Firestop Sealant**

Description: One-part acrylic-based sealant

Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121

Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m^3 (R)	NE	NE
Zinc borate	138265-88-0	NE	NE	NE
Talc	014807-96-6	20 mppcf	2 mg/m^3(R)	NE
Ethylene glycol	000107-21-1	NE	NE	C:100 mg/m^3 (A)
Iron oxide	001309-37-1	10 mg/m^3 (F)	5 mg/m^3(R)	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **C** = Ceiling. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **(T)** indicates “as total dust”. **(R)** indicates “as respirable fraction”. **(A)** indicates “as an aerosol”. **mppcf** = million particles per cubic foot. **F** = Fume

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Odorless.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	23mbar @ 20C / 68F
Boiling Point:	Not applicable.	**VOC Content:**	75.0 g/L.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
Specific Gravity:	1.5	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Non-flammable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:		ng media as appropriate for surrou fire.	

Special Fire Fighting Procedures:	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.
Unusual Fire and Explosion Hazards:	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and oxid agents.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
Medical Conditions Aggravated by Exposure:	Eye and skin conditions.
Routes of Exposure:	Dermal.
Carcinogenicity:	No ingredients are classified as carcinogens.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Contact a physician if symptoms occur.
Skin:	Immediately wipe off material and wash with soap and water. Contact a physician if symptoms occur.
Inhalation:	Move victim to fresh air if discomfort develops. Contact a physician if symptoms occur. persist.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a physician.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety glasses with side shields.
Skin Protection:	Impermeable gloves. Other protective clothing as required to prevent skin contact.
Respiratory Protection:	None normally required. Where ventilation is inadequate to control vapors, use a NIOSHapproved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool, dry area preferably between 40º and 77º F. Keep from freezing. Do not store in direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.
Spill Procedures:	Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf	(x71003704)	
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Safety Data Sheet

Section 1 Product and Company Identification

Manufacturer
USGlycerin/CFB Michigan Inc.
27450 May Street
Edwardsburg, MI 49112
United States of America
Phone: 269-663-8855 Fax: 269-663-3054

Emergency Phone Numbers
847-285-1888 Normal Business Hrs.
USA & Canada Chemtrec 800-424-9300
International Chemtrec 703-527-3887

Recommended Usage: Industrial Applications
Other Identifier: Glycerin – Industrial Grade

Product Name: Glycerin 99.5% Technical

Section 2 Hazards Identification

Classification of the Mixture: Clear or light yellow liquid. No distinct odor.
Most Important Hazards: None
Hazard Classification: None

Signal Word: None
Pictograms:

Precautionary Statements:
Inhalation – None
Skin – None
Eyes - None
Ingestion – None
Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with provisions of GHS.
Quantity of Ingredients with Unknown Acute Toxicity: 0.5%

Section 3 Composition Information on Ingredients

Ingredient	WT %	CAS #
Glycerin	>99	56-81-5

Section 4 First Aid Measures

Eyes: Flush eyes immediately with water for at least 15minutes or until irritation subsides. If irritation persists, consult a physician. **Skin:** Wash skin thoroughly with soap and water. Launder all contaminated clothing before reuse. If skin irritation or rash develops obtain medical assistance.
Ingestion: Product is non-toxic. Do not induce vomiting.
Inhalation: Not likely to occur except as a mist. Move to fresh air and provide oxygen if necessary. Obtain emergency medical attention.

Section 5 Fire Fighting Measures

Flammable Properties:
Flash point: 320°F (ASTM D-56) Flammable limits in air: N/A Auto ignition temperature: NA
Extinguishing media: CO_2, dry chemical, foam **Special fire fighting measure:**
Procedures for an oil fire should be followed. Use self contained breathing apparatus. Use foam or dry chemical to extinguish fire. Water may be used only to keep surrounding containers cool.

Section 6 Accidental Release Measures

- **Advise EPA/state agency if required.**
- **Absorb spillage with inert absorbent material.** **• Use proper personal protective equipment for clean-up.**
- **Contain spill and keep from entering waterways or sewers.** **• Treat contaminated absorbent same as spilled product.**

Section 7 Handling and Storage

Handling and Storage Precautions: Keep away from flames, sparks or hot surfaces. Never use a torch to cut or weld on or near container. Empty containers can contain explosive vapors. NFPA Class IIIB storage.
Do not allow product to freeze. If product freezes allow product to thaw completely prior to use.
Work/Hygienic Practices: Wash thoroughly after handling. Do not use gasoline, solvents, kerosene, or harsh abrasive skin cleaners for washing exposed skin areas. Take a shower after work if general contact occurs.

Section 8 Personal Protection/ Exposure Controls

Engineering Controls: Keep mists of this material below applicable standards.
Respiratory Protection: Not required. If occupational exposure limits are exceeded wear NIOSH approved apparatus.
Skin Protection: Not required. Wear protective impervious gloves and clothing on prolonged exposure. Acceptable materials for gloves are polyvinyl chloride; neoprene; polyvinyl alcohol; nitrile; viton.
Eye Protection: Glasses or goggles. Have suitable eye wash water available.
Other/General Protection: None required.

Section 9 Physical and Chemical Properties

Color:	Colorless	**Vapor Pressure:**	N/A °F	**Solubility in Water:**	Soluble
Appearance:	Clear Liquid	**% Volatile by Volume:**	N/A	**Evaporation Rate**	
Odor:	Characteristic	**Vapor Density (air = 1):**	N/A	**(Water = 1):**	<1

Boiling Point: >350° F **Reactivity in Water:** Non-reactive **Specific Gravity: pH@ 10%:** N/D **Viscosity @ 40C:** N/A 1.261

Section 10 Stability and Reactivity

Stability: Stable **Conditions to avoid:** Sources of ignition. **Incompatibility:** Strong oxidizing or reducing agents. **Decomposition Products:** Oxides of Carbon and Hydrogen. **Hazardous Polymerization:** Will not occur.

Section 11 Toxicological Information

Likely Routes of Exposure: Inhalation, skin, eyes and ingestion.
Potential Health Effects:
Eye Effects: Minimal irritation on contact
Skin Effects: Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated contact
Oral Effects: Tests on similar materials indicate low order of acute oral toxicity.
Inhalation Effects: Low acute toxicity expected on inhalation
Chronic Health Effects: Not Classified
Mutagenicity: Not Classified
Carcinogenicity: Not Classified
Teratogenicity: Not Classified
Sensitization: Not Classified
Toxicological Data:

Section 12 Ecological Information

Not classified due to inadequate data available on this mixture. Recommend avoidance of release to the environment.

Section 13 Disposal Considerations

Avoid release to the environment. Dispose in a safe manner in accordance with national, state and local regulations. Not a RCRA hazardous waste if uncontaminated. If "used" RCRA criteria must be determined. Dispose of container by recycling or if permitted incineration.

Section 14 Transportation Information

Proper Shipping Name: Glycerin
Shipping Class: 55
Dot Identification Number: N/A
Dot Shipping Label: Not regulated by DOT.
TDG Classification: Not controlled under TDG (Canada).

Section 15 Regulatory Information

U.S. Federal Regulatory Information:
SARA 302 Threshold Planning Quantity: N/A SARA 304 Reportable Quantity: N/A SARA 311 Categories:

Acute Health Effects:	None
Chronic Health Effects:	None
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No
Reactivity Hazard:	No

EPA/TSCA Inventory: The components of this product are listed on the EPA/TSCA inventory of chemicals.
EPA Hazard Classification Code: Not applicable
CERCLA: No chemicals in this product are subject to the reporting requirements of CERCLA.
SARA Title III - Section 313 Supplier Notification: No Chemicals in this product exceed the DE Minimus reporting level established by SARA Title III, Section 313 and 40 CFR 372.
WHMIS Classification: WHMIS controlled. Class D; Division 2, Subdivision B: otherwise causing toxic effects.
Other Regulations: All components of this formulation are listed on the CEPA-DSL (Domestic Substance List)

Section 16 Other Information

NFPA Hazard Rating:

Health:	**1**	**Slight**
Flammability:	**1**	**Slight**
Reactivity:	**0**	**Negligible**

SDS Dated: 5/04/2015
SDS Revision Date: 5/04/2015
*****Threshold Limit Value/Personal Exposure Limit
N/A = Not Applicable
N/E = Not Established

Disclaimer of Express or Implied Warranties
The information contained herein is based upon data believed to be reliable and reflects our best professional judgment. Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy of completeness of the information contained therein and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequence of its use. Each individual should make a determination as to the suitability of the information for his/her particular purpose(s).

Safety Data Sheet acc. to ISO 11014

Printing date 08/04/2015 **Version number 4** **Reviewed on 08/04/2015**

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1 Identification

· **Product identifier**

· **Trade name: CP 506**
CS-ADH ACR 310

· **Relevant identified uses of the substance or mixture and uses advised against**
· **Sector of Use** Building and construction work
· **Application of the substance / the mixture** Construction chemicals

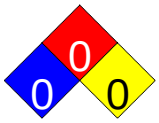
· **Details of the supplier of the safety data sheet** · **Manufacturer/Supplier:**
Hilti, Inc.
5400 South 122nd East Ave.
US-Tulsa, OK 74146
Phone: (800) 879-8000
Fax: (800) 879-7000
Español: (800) 879-5000

· **Information department:**
chemicals.hse@hilti.com
see section 16
· **Emergency telephone number:**
Tox Info Suisse - 24 h Service
Tel.: 0041 / 44 251 51 51 (international)
.
Chem-Trec
Tel.: 1 800 424 9300

2 Hazard(s) identification

· **Classification of the substance or mixture** The product is not classified according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Void
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Classification system**
· **NFPA ratings (scale 0-4)**



Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment** · **PBT:** Not applicable.
· **vPvB:** Not applicable.

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Safety Data Sheet

3 Composition/information on ingredients

· **Chemical characterization:**
Mixtures · Description:

Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

56-81-5	glycerol	<2.5%

· **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information** No special measures required.
· **After inhalation** Take affected persons into fresh air and keep quiet.
· **After skin contact**
Immediately wash with water and soap and rinse
thoroughly. If skin irritation continues, consult a doctor.
· **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. · **After swallowing** Seek immediate medical advice.
· **Information for doctor**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

(Contd. on page 2)

(Contd. of page 1)

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents** CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Ensure adequate ventilation

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Ensure adequate ventilation
Particular danger of slipping on leaked/spilled product.
· **Environmental precautions:** Do not allow product to reach sewage system or any water course.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

· **Handling**
· **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage**
· **Requirements to be met by storerooms and receptacles:** keep containers securely closed and dry, store at 5 - 25 °C / 41 - 77 °F · **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.

· **Storage class** 10
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace. · **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
Avoid contact with the eyes and skin.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
· **Breathing equipment:** Not necessary if room is well-ventilated. · **Protection of hands:**

Protective gloves.

EN 374
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. · **Material of gloves** Nitrile rubber, NBR
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles.

EN 166 + EN 170

(Contd. on page 3)

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US

(Contd. of page2)

· **Body protection:**

Protective work clothing.

9 Physical and chemical properties

· **Information on basic physical and chemical properties · General Information · Appearance:**

Form:	Pasty
Color:	According to product specification
· **Odor:**	Characteristic
· **Odour threshold:**	Not determined

· **pH-value:**	Not applicable

· **Change in condition**

Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	undetermined

· **Flash point:**	Not applicable
· **Flammability (solid, gaseous)**	Not determined
· **Ignition temperature:**	Not applicable
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.

· **Explosion limits:**

Lower:	Not determined
Upper:	Not determined

· **Vapor pressure:**	Not determined
· **Density:**	Not determined

· **Relative density** Not determined · **Vapour density** Not determined

· **Evaporation rate**	Not determined

· **Solubility in / Miscibility with**

Water: .
Not miscible or difficult to mix

· **Partition coefficient (n-octanol/water):** Not determined

· **Viscosity:**

dynamic: Not determined **kinematic:** Not determined

· **Other information**	VOC Content: 57 g/l (EPA Method 24)

10 Stability and reactivity

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

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

(Contd. on page 4)

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation** Smaller quantities can be disposed of with household waste.

· **Uncleaned packagings:**
· **Recommendation:**
Dispose of packaging according to regulations on the disposal of packagings.
Empty packs: May be disposed via the local Green Dot collecting system or EAK waste material code 150102 (plastic packaging materials)

(Contd. of page 3)

· **NTP (National Toxicology Program)**
None of the ingredients is listed

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** Not determined
· **Additional ecological information:**
· **General notes:** Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment** ·
PBT: Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture · Sara**

· **Section 355 (Extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65:**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

(Contd. on page 5)

14 Transport information

· **UN-Number** · **DOT, ADR, ADN, IMDG, IATA**	Void
· **UN proper shipping name** · **DOT, ADR, ADN, IMDG, IATA**	Void
· **Transport hazard class(es)** · **DOT, ADR, ADN, IMDG, IATA** · **Class**	Void
· **Packing group** · **DOT, ADR, IMDG, IATA**	Void
· **Environmental hazards:** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications.
· **UN "Model Regulation":**	Void

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acc. to ISO 11014

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(Contd. of page 4) · **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Chemical safety assessment:** not required.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:**
Hilti Corporation
Business Unit Chemicals
Quality/Safety/Environment FL-
9494 Schaan / Liechtenstein

chemicals.hse@hilti.com
Tel.: +423 234 3004
FAX.: +423 234 3462

· **Date of preparation / last revision** 08/04/2015 / 3

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
PBT: Persistent, Bioaccumulative and Toxic vPvB:
very Persistent and very Bioaccumulative

· *** Data compared to the previous version altered.**

MATERIAL SAFETY DATA SHEET

Product name:	**FS 635 Trowelable Firestop Compound**
Description:	Cementitious mixture for use as a fire barrier.
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	**CAS Number:**	**TLV:** (mg/m^3)	**PEL:** (mg/m^3)	**STEL:** (mg/m^3)
Portland cement	65997-15-1	10	15 (T); 5 (R)	NE
Crystalline silica (sand)	14808-60-7	0.05 (R)	$\left(\frac{10\ mg/m^3}{\%SiO_2 + 2}\right)$	NE
Perlite	93763-70-3	10 (R)	15 (T); 5 (R)	NE
Cellulose fiber	65996-61-4	10 (R)	15 (T); 5 (R)	NE
Glass filament	65997-17-3	5 (T)	NE	NE
Polyvinyl acetate	09003-20-7	NE	NE	NE
Iron oxide	01332-37-2	5	10	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **T** = "total" dust. **R** = "respirable" fraction.

PHYSICAL DATA

Appearance:	Coarse red powder.	**Odor:**	Negligible.
Boiling Point:	Not applicable.	**Vapor Pressure:**	Not applicable.
Melting Point:	Not determined.	**VOC Content:**	Not applicable.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
pH:	11 – 13 (for cement)	**Bulk Density:**	52 – 56 lbs/ft^3

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:		fire; material itself does not burn.	
Special Fire Fighting Procedures:	As appropriate for surrounding fire. Plastic pails will give off toxic gases when subjected to fire.		
Unusual Fire and Explosion Hazards:	None known.		

REACTIVITY DATA

Stability:	Stable.
Hazardous Polymerization:	Will not occur.
Incompatibility:	Strong alkalies; hydrofluoric acid.
Hazardous Decomposition Products:	Not applicable.

Conditions to Avoid:	None known.

HEALTH HAZARD DATA

Known Hazards:	**Acute:** Skin and respiratory irritant. Prolonged exposure to moist skin can cause chemical burns. **Chronic:** Long-term and repeated inhalation of dusts can lead to respiratory difficulty.
Signs and Symptoms of Exposure:	Contact with the eyes or moist skin can lead to irritation and possibly burns. Prolonged and repeated exposure to the hands can lead to drying of the skin and contact dermatitis. Chronic overexposure to dusts can lead to breathing difficulty.
Routes of Exposure:	Inhalation, Dermal.

Medical Conditions Aggravated by Exposure:	Eye, skin, and respiratory conditions.
Carcinogenicity:	IARC classifies crystalline silica (quartz sand) as a Gp I carcinogen based upon evidence among workers in industries where there has been long-term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. The nature and intended use of this product does not pose a cancer risk from silica. A properly fitted and NIOSH-approved dust mask will greatly reduce the potential for exposure to silica if dusts are generated during mixing.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Flush with plenty of water while holding eyelids apart. Avoid rubbing the eyes as mechanical abrasions can occur. Call a physician if symptoms persist.
Skin:	Wash with soap and water. Launder clothing before reuse.
Inhalation:	Move to fresh air.
Ingestion:	No ill effects expected. Not a likely route of exposure.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety goggles or safety glasses with side shields recommended.
Skin Protection:	Cloth gloves
Respiratory Protection:	Use local exhaust and/or a NIOSH-approved dust respirator when air movement is inadequate to control dusts / fibers below recommended exposure levels.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Avoid generating dusts. Local exhaust may be required to control dusts while mixing. Avoid contact with the skin. Wear appropriate personal protective equipment. Store away from moisture; keep dry.
Spill Procedures:	Sweep up and discard.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B (Gloves, Goggles)

DOT Shipping Name:	Not regulated.
ICAO / IATA Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product does not contain any toxic chemicals that are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000		**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000	Jerry Metcalf	(x6704)	

Emergency # (Chem-Trec): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

MATERIAL SAFETY DATA SHEET

Product name:	**Spray Lubricant**
Description:	Petroleum derivatives/Spray lubricant for cleaning Hilti Powder Actuated Tools
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121; phone 1800 879 8000
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Not a hazardous chemical as defined by the OSHA Hazard Communication Standard 29 CFR 1919.1200.

PHYSICAL DATA

Appearance:	Clear liquid.	**Odor:**	Mild oil-like.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	Not determined.
Boiling Point:	Not determined.	**VOC Content:**	Not determined.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Slightly soluble.
Specific Gravity:	0.94	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point / Test Method:	> 419° F / DIN 53213	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Carbon Dioxide, Dry Chemical, Foam.		
Special Fire Fighting Procedures:	None known. A self-contained breathing apparatus should be used when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Material will burn if exposed to fire conditions. Pressure build-up in cans may cause them to rupture. Contents are not pressurized.		

REACTIVITY DATA

Stability:	Stable.
Hazardous Polymerization:	Will not occur.
Incompatibility:	Strong oxidizing agents.
Hazardous Decomposition Products:	Thermal decomposition can yield CO and CO_2.
Conditions to Avoid:	Incompatible materials.

HEALTH HAZARD DATA

Known Hazards:	Slight skin and eye irritation.
Routes of Exposure:	Contact.
Signs and Symptoms of Exposure:	**Eyes:** Slight irritation is possible. Corneal injury is not expected. **Skin:** Possible irritation. **Inhalation:** No ill effects expected. **Ingestion:** Not a likely route of exposure.
Carcinogenicity:	No ingredients are classified as a carcinogen by IARC, NTP or OSHA.
Medical Conditions Aggravated by Exposure:	Eye, skin, and respiratory conditions.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Flush with plenty of water. Contact a physician if symptoms persist.
Skin:	Wash with soap and water.
Inhalation:	No ill effects expected. If discomfort occurs, move to fresh air.
Ingestion:	Not considered to be a route of exposure.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure. If sensitization occurs, future contact with the material should be avoided.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety glass with side shields.
Skin Protection:	Impermeable gloves recommended.
Respiratory Protection:	None normally required.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Avoid prolonged or repeated contact with skin and clothing. Wash thoroughly after handling. Store in a cool dry place out of direct rays of the sun. Recommended storage temperature range is between 40° and 100° F.
Spill Procedures:	Cover with an absorbent material and place in a salvage container for proper disposal.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated.
ICAO / IATA Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product does not contain any toxic chemicals which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

JOHNSEN'S JACK OIL 32 FL.OZ.

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 09/12/2014 : Version:

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

1.1. Product identifier

Product form	: Mixture
Trade name	: JOHNSEN'S JACK OIL 32 FL.OZ.
Product code	: 5594

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

Use of the substance/mixture : Jack Oil

1.3. Details of the supplier of the safety data sheet

Technical Chemical Company
P.O. BOX 139
Cleburne, Texas 76033 T
817-645-6088

1.4. Emergency telephone number

Emergency number : CHEMTREC 24 Hour 1-800-424-9300, 1-703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute Tox. 4 (Inhalation:dust,mist) H332

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling :

Hazard pictograms (GHS-US)

GHS07

Signal word (GHS-US)	:	Warning
Hazard statements (GHS-US)	:	H332 - Harmful if inhaled
Precautionary statements (GHS-US)	:	P261 - Avoid breathing dust,fume,gas,mist,vapor spray 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 CONTROL CENTER, doctor, if you feel unwell.

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Distillates (Petroleum), Hydrotreated Heavy Naphthenic	(CAS No) 64742-52-5	>= 95	Acute Tox. 4 (Inhalation:dust,mist), H332
Hydroxyalkyl carboxylic ester	(CAS No) Confidential	< 1	Skin Irrit. 2, H315

SECTION 4: First aid measures

4.1. Description of first aid measures

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

First-aid measures after inhalation : Assure fresh air breathing. Allow the victim to rest. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

Symptoms/injuries : If you feel unwell, seek medical advice. Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled.

Symptoms/injuries after skin contact : May cause slight irritation . Itching. Red skin. Skin rash/inflammation.

Symptoms/injuries after eye contact : May cause slight eye irritation . Irritation of the eye tissue. Inflammation/damage of the eye tissue. Redness of the eye tissue.

Symptoms/injuries after ingestion : May be harmful if swallowed and enters airways. May be fatal if swallowed and enters airways.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand. Unsuitable extinguishing media

: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources.

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Safety glasses.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

For containment : Dam up the liquid spill. Contain released substance, pump into suitable containers. Plug the leak, cut off the supply.

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Use only outdoors or in a well-ventilated area. Avoid breathing dust,fume,gas,mist,vapor spray.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Wash affected areas thoroughly after handling. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Comply with applicable regulations.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

Follow Label Directions.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)		
USA ACGIH	ACGIH TWA (mg/m³)	5 mg/m³ Inhalable fraction

Hydroxyalkyl carboxylic ester (Confidential)		
USA ACGIH	ACGIH TWA (mg/m³)	5 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³

8.2. Exposure controls

Appropriate engineering controls : Local exhaust venilation, vent hoods.

Personal protective equipment : Gloves. Safety glasses. Avoid all unnecessary exposure.

Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: Wear appropriate mask.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Light yellow to yellow.
Odor	: Characteristic odour. Petroleum-like odour.
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 154.4 °C
Auto-ignition temperature	: 323.9 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: 0.9
Solubility	: Poorly soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: 39.86 cSt @ 40 deg C
Viscosity, dynamic	:

Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	No data available
		No data available

9.2. Other information

VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Toxic fume. . Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled.

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)	
LD50 oral rat	> 5000 ml/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	2.18 mg/l/4h

Hydroxyalkyl carboxylic ester (Confidential)	
LD50 oral rat	2000 - 5000 mg/kg
LD50 dermal rabbit	> 2000 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)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met. Harmful if inhaled.
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled.
Symptoms/injuries after skin contact	: May cause slight irritation . Itching. Red skin. Skin rash/inflammation.
Symptoms/injuries after eye contact	: May cause slight eye irritation . Irritation of the eye tissue. Inflammation/damage of the eye tissue. Redness of the eye tissue.
Symptoms/injuries after ingestion	: May be harmful if swallowed and enters airways. May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1. Toxicity

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)	
EC50 Daphnia 1	> 1000 mg/l 48 HOURS

12.2. Persistence and degradability

JOHNSEN'S JACK OIL 32 FL.OZ.	
Persistence and degradability	Not established.

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)	
Persistence and degradability	Not established.

Hydroxyalkyl carboxylic ester (Confidential)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

JOHNSEN'S JACK OIL 32 FL.OZ.	
Bioaccumulative potential	Not established.

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)	
Bioaccumulative potential	Not established.

Hydroxyalkyl carboxylic ester (Confidential)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container to appropriate waste disposal facility, in accordance with local, regional, national, international regulations. . Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / AD N

US DOT (ground): Not Regulated,

ICAO/IATA (air): Not Regulated,

IMO/IMDG (water): Not Regulated,

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Not Regulated

14.3. Additional information

Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

JOHNSEN'S JACK OIL 32 FL.OZ.	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard Immediate (acute) health hazard

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

Hydroxyalkyl carboxylic ester (Confidential)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)
Listed on the Canadian DSL (Domestic Sustances List)

EU-Regulations

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.2; R45

Full text of R-phrases: see section 16

15.2.2. National regulations

Distillates (Petroleum), Hydrotreated Heavy Naphthenic (64742-52-5)
Listed on AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Hydroxyalkyl carboxylic ester (Confidential)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information : None.

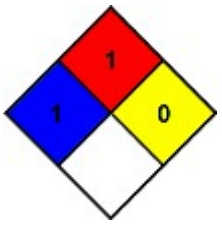
Full text of H-phrases: see section 16:

Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Skin Irrit. 2	Skin corrosion/irritation Category 2
H315	Causes skin irritation
H332	Harmful if inhaled

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 1 - Must be preheated before ignition can occur.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 1 Slight Hazard

Physical : 0 Minimal Hazard

Personal Protection : B

SDS US (GHS HazCom 2012) - TCC

The Supplier identified in Section 1 of this MSDS has evaluated this product and certifies it to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission, and where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No other testing is required to certify compliance with the above. The date of manufacture is stamped on the product

MATHESON TRI•GAS
ask. . .The Gas Professionals™

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: ACETYLENE, DISSOLVED

TRADE NAMES/SYNONYMS:
MTG MSDS 1; ACETYLENE; ETHYNE; WELDING GAS; ACETYLEN; ETHINE; NARCYLEN; VINYLENE; UN 1001; C2H2; MAT00280; RTECS AO9600000

CHEMICAL FAMILY: hydrocarbons, aliphatic

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: ACETYLENE
CAS NUMBER: 74-86-2
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=3

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
ODOR: sweet odor
MAJOR HEALTH HAZARDS: central nervous system depression, difficulty breathing
PHYSICAL HAZARDS: May explode when heated. Flammable gas. May cause flash fire. Electrostatic charges may be generated by flow, agitation, etc. May polymerize. Containers may rupture or explode.

POTENTIAL HEALTH EFFECTS: INHALATION:

SHORT TERM EXPOSURE: nausea, vomiting, chest pain, wheezing, headache, drowsiness, dizziness, loss of coordination, bluish skin color, suffocation, lung congestion, coma **LONG TERM EXPOSURE:** no information on significant adverse effects **SKIN CONTACT:**
SHORT TERM EXPOSURE: rash
LONG TERM EXPOSURE: no information is available **EYE CONTACT:**
SHORT TERM EXPOSURE: no information on significant adverse effects
LONG TERM EXPOSURE: no information is available **INGESTION:**
SHORT TERM EXPOSURE: ingestion of a gas is unlikely
LONG TERM EXPOSURE: ingestion of a gas is unlikely

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash exposed skin with soap and water.

EYE CONTACT: Flush eyes with plenty of water.

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe explosion hazard. Vapor/air mixtures are explosive. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish

and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). Consider downwind evacuation if material is leaking. Stop flow of gas.

LOWER FLAMMABLE LIMIT: 2.5%
UPPER FLAMMABLE LIMIT: 100%
AUTOIGNITION: 581 F (305 C)

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Keep separated from incompatible substances. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Grounding and bonding required. Secure to prevent tipping. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
ACETYLENE, DISSOLVED: ACETYLENE:
ACGIH (simple asphyxiant)
2500 ppm (2662 mg/m3) NIOSH recommended ceiling

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Eye protection not required, but recommended.

CLOTHING: Protective clothing is not required.

GLOVES: Protective gloves are not required, but recommended.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positivepressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressuredemand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: sweet odor
MOLECULAR WEIGHT: 26.04
MOLECULAR FORMULA: H-C-C-H
BOILING POINT: Not available
FREEZING POINT: Not available
SUBLIMATION POINT: -119 F (-84 C) **VAPOR PRESSURE:** 760 mmHg @ -84 C
VAPOR DENSITY (air=1): 0.90
SPECIFIC GRAVITY: Not applicable
DENSITY: 1.1747 g/L @ 0 C
WATER SOLUBILITY: 0.94% @ 25 C
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
VISCOSITY: 0.010 cP @ 20 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable **SOLVENT SOLUBILITY:**
Soluble: acetone, benzene, chloroform, ether

10. STABILITY AND REACTIVITY

REACTIVITY: May decompose violently on heating. May explode when heated.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: metals, halogens, oxidizing materials, metal carbide, reducing agents, halo carbons

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of carbon

POLYMERIZATION: Polymerizes with evolution of heat. Avoid contact with curing agents, accelerators, and/or initiators.

11. TOXICOLOGICAL INFORMATION

ACETYLENE, DISSOLVED:
TARGET ORGANS: central nervous system
ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

FATE AND TRANSPORT:
KOW: 2691.53 (log = 3.44) (estimated from water solubility)

KOC: 4508.17 (log = 3.66) (estimated from water solubility)

HENRY'S LAW CONSTANT: 2.8 E -3 atm-m3/mol

BIOCONCENTRATION: 3.48 (estimated from water solubility)

AQUATIC PROCESSES: 1.3269231 hours (River Model: 1 m deep, 1 m/s flow, 3 m/s wind)

ENVIRONMENTAL SUMMARY: Relatively non-persistent in the environment. Not expected to leach through the soil or the sediment. Accumulates very little in the bodies of living organisms. Highly volatile from water.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003.

PROPER SHIPPING NAME:

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

ID NUMBER: UN1001
HAZARD CLASS OR DIVISION: 2.1
LABELING REQUIREMENTS: 2.1
Acetylene, dissolved
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: 15 kg

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Acetylene, dissolved
UN NUMBER: UN1001
CLASS: 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: Yes
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: ABF

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
959 ROUTE 46 EAST
PARSIPPANY, NEW JERSEY 07054-0624

EMERGENCY CONTACT:
CHEMTREC 1-800-424-9300
INFORMATION CONTACT:
973-257-1100

SUBSTANCE: NITROGEN, COMPRESSED GAS

TRADE NAMES/SYNONYMS:
MTG MSDS 67; DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2; MAT16625; RTECS QW9700000

CHEMICAL FAMILY: inorganic, gas

CREATION DATE: Jan 24 1989 **REVISION DATE:** Jun 16 2005

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: NITROGEN, COMPRESSED GAS
CAS NUMBER: 7727-37-9
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
ODOR: odorless
MAJOR HEALTH HAZARDS: difficulty breathing
PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat.

POTENTIAL HEALTH EFFECTS:
INHALATION:

SHORT TERM EXPOSURE: nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

LONG TERM EXPOSURE: no information is available **SKIN CONTACT:**

SHORT TERM EXPOSURE: no information on significant adverse effects

LONG TERM EXPOSURE: no information on significant adverse effects **EYE CONTACT:**

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: no information on significant adverse effects **INGESTION:**

SHORT TERM EXPOSURE: ingestion of a gas is unlikely

LONG TERM EXPOSURE: ingestion of a gas is unlikely

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash exposed skin with soap and water.

EYE CONTACT: Flush eyes with plenty of water.

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Pressurized containers may rupture or explode if exposed to sufficient heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or

combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
NITROGEN, COMPRESSED GAS:
NITROGEN:
ACGIH (simple asphyxiant)

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Eye protection not required, but recommended.

CLOTHING: Protective clothing is not required.

GLOVES: Protective gloves are not required.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Any self-contained breathing apparatus with a full facepiece.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless **ODOR:**
odorless
TASTE: tasteless
MOLECULAR WEIGHT: 28.0134
MOLECULAR FORMULA: N2
BOILING POINT: -321 F (-196 C)
FREEZING POINT: -346 F (-210 C)
VAPOR PRESSURE: 760 mmHg @ -196 C
VAPOR DENSITY (air=1): 0.967
SPECIFIC GRAVITY: Not applicable **DENSITY:**
1.2506 g/L
WATER SOLUBILITY: 1.6% @ 20 C
PH: Not applicable
VOLATILITY: 100%
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
VISCOSITY: 0.01787 cP @ 27 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable **SOLVENT SOLUBILITY:**
Soluble: liquid ammonia
Slightly Soluble: alcohol

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: metals, oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of nitrogen

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

Not available

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Nitrogen, compressed
ID NUMBER: UN1066
HAZARD CLASS OR DIVISION: 2.2
LABELING REQUIREMENTS: 2.2

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Nitrogen, compressed
UN NUMBER: UN1066 **CLASS:**
2.2

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21): ACUTE: Yes
CHRONIC: No FIRE:
No

REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Listed on inventory.

16. OTHER INFORMATION

MSDS SUMMARY OF CHANGES
2. COMPOSITION, INFORMATION ON INGREDIENTS
5. FIRE FIGHTING MEASURES

MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR USE. MATHESON TRI-GAS, INC. SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE, WHETHER COMPENSATORY, CONSEQUENTIAL, EXEMPLARY, OR OTHERWISE, RESULTING FROM ANY PUBLICATION, USE OR RELIANCE UPON THE INFORMATION HEREIN.

MATHESON TRI•GAS
ask. . .The Gas Professionals™

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: OXYGEN, COMPRESSED GAS

TRADE NAMES/SYNONYMS:
MTG MSDS 71; OXYGEN; DIOXYGEN; MOLECULAR OXYGEN; OXYGEN MOLECULE; PURE OXYGEN; UN 1072; LOX; HYPEROXIA; O2; MAT12831; RTECS RS2060000

CHEMICAL FAMILY: inorganic, gas

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: OXYGEN, COMPRESSED GAS
CAS NUMBER: 7782-44-7
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
ODOR: odorless
MAJOR HEALTH HAZARDS: No significant target effects reported.
PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat. May ignite combustibles.

POTENTIAL HEALTH EFFECTS: INHALATION:

SHORT TERM EXPOSURE: irritation, chest pain, cough, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions
LONG TERM EXPOSURE: irritation, cough, chest pain, lung damage **SKIN CONTACT:**
SHORT TERM EXPOSURE: frostbite, blisters
LONG TERM EXPOSURE: no information on significant adverse effects **EYE CONTACT:**
SHORT TERM EXPOSURE: irritation, frostbite, blurred vision
LONG TERM EXPOSURE: no information on significant adverse effects **INGESTION:**
SHORT TERM EXPOSURE: ingestion of a gas is unlikely
LONG TERM EXPOSURE: ingestion of a gas is unlikely

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Get medical attention.

SKIN CONTACT: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

EYE CONTACT: Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials. Containers may rupture or explode if exposed to heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny

entry. Let the fire burn. Use extinguishing agents appropriate for surrounding fire. Cool containers with water. Apply water from a protected location or from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Stop leak if possible without personal risk. Avoid contact with combustible materials. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Protect from physical damage. Avoid heat, flames, sparks and other sources of ignition. Store in a clean, cool, dry place. Store in a well-ventilated area. Store below 125 F. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
OXYGEN, COMPRESSED GAS:
No occupational exposure limits established.

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positivepressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressuredemand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas **COLOR:**
colorless **ODOR:** odorless
TASTE: tasteless
MOLECULAR WEIGHT: 31.9988
MOLECULAR FORMULA: O2
BOILING POINT: -297.33 F (-182.96 C)
FREEZING POINT: -361.1 F (-218.4 C)
VAPOR PRESSURE: 760 mmHg @ -183 C
VAPOR DENSITY (air=1): 1.43
SPECIFIC GRAVITY (water=1): 1.14 @ -183 C (liquid)
DENSITY: 1.309 g/L @ 25 C
WATER SOLUBILITY: 3.2% @ 25 C
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
VISCOSITY: 0.02075 cP @ 25 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable **SOLVENT SOLUBILITY:**
Soluble: alcohol

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid contact with combustible materials. Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

OXYGEN, COMPRESSED GAS:
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

PROPER SHIPPING NAME:

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

ID NUMBER: UN1072
HAZARD CLASS OR DIVISION: 2.2
LABELING REQUIREMENTS: 2.2; 5.1
Oxygen, compressed

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Oxygen, compressed
UN NUMBER: UN1072
CLASS: 2.2; 5.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A, C.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Listed on DSL.

16. OTHER INFORMATION

MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY

MATERIAL SAFETY DATA SHEET

Product name:	**O-Ring Grease** (Item No. 12423)
Description:	Dow Corning No. 4 silicone based lubricant
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121; phone 1800 879 8000
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Silicone based lubricant	NE	NE	NE	NE

PEL = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **NE** = None Established.

PHYSICAL DATA

Appearance:	Brown paste	**Odor:**	Very little odor
Vapor Density: (air = 1)	Not applicable	**Vapor Pressure:**	<5 mm Hg @ 68F
Boiling Point:	> 300° F / 149° C	**VOC Content:**	None
Evaporation Rate:	< 1 (ether = 1)	**Solubility in Water:**	< 0.1%
Specific Gravity:	1.0	**pH:**	Not determined

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	> 250° F / 121° C	**Flammable Limits:**	Not applicable

Extinguishing Media: Water, CO_2, Dry Chemical, Foam

Special Fire Fighting Procedures: None known. A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.

Unusual Fire and Explosion Hazards: None known. Traces of formaldehyde and other thermal decomposition products can form at temperatures above 150° C. See below.

REACTIVITY DATA

Stability: Stable.

Hazardous Polymerization: Will not occur.

Incompatibility: Strong acids, peroxides and other oxidizing agents.

Decomposition Products: Silicon dioxide, carbon dioxide, formaldehyde and traces of incompletely burned carbon products.

Conditions to Avoid: None known.

HEALTH HAZARD DATA

Known Hazards: None known.

Signs and Symptoms of Exposure: **Eyes** - Can possibly cause temporary discomfort but injury is unlikely. **Skin** - Prolonged and repeated exposure to skin could cause slight irritation. **Inhalation** - No effects expected. **Ingestion** – Not considered to be a route of exposure. Effects of ingestion have not been determined. Considered to have a low acute oral toxicity.

Routes of Exposure: Dermal.

Carcinogenicity: No ingredients are classified as a carcinogen by IARC, NTP or OSHA.

Medical Conditions Aggravated by Exposure: None anticipated.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Flush with plenty of water. Call a physician if symptoms occur.
Skin:	No effects expected. Wash with soap and water after using.
Inhalation:	No effects expected.
Ingestion:	No effects expected.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses are required in most industrial settings.
Skin Protection:	Washing at mealtime and end of shift is adequate.
Respiratory Protection:	Not normally required.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Avoid extreme heat. Practice good hygiene; i.e. washing after use and before eating or smoking. For industrial use only. Keep out of reach of children.
Spill Procedures:	Wipe up spilled material and place in a container for disposal. Use a cloth to remove any oil-like residue from surfaces.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 0, Flammability 0, Reactivity 0, PPE A
DOT Shipping Name:	Not regulated.
ICAO / IATA Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product does not contain any ingredients which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Material Safety Data Sheet

PERMABOND LH050

Revision Number: 1 Issue date: 12/06/13

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: PERMABOND LH050 Telephone: 732-868-1372 or 800-640-7599 **Product Type:** Anaerobic Adhesive/Sealant Website: www.permabond.com

Company: PERMABOND LLC
14 Robinson Street
Pottstown, PA 19464
USA

Emergency Telephone:
Medical: Poison Control Center 866-827-6282
Transport: CHEMTREC 800-424-9300

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state: Paste
Color: White
Odor: Mild odor

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

WARNING: CAUSES EYE IRRITATION

CAUSES SKIN IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

MAY CAUSE RESPIRATORY TRACT IRRITATION

MAY BE HARMFUL IF SWALLOWED

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation.
Eye contact: Contact with eyes will cause irritation.
Ingestion: May be harmful if swallowed. May cause gastrointestinal tract irritation

if swallowed.

Existing conditions aggravated by exposure: Skin, eye 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	CONCENTRATION (%)
Polyglycol Dimethacrylate	25852-47-5	60 – 100
Silica, amorphous, fumed crystal free	112945-52-5	1 – 5

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms develop and persist, get medical attention.

Skin contact: Wash with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms occur.

Eye contact: Flush with plenty 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 and get medical attention.

Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flash point: 110°C (230°F) Sataflash closed cup
Auto ignition temperature: Not available
Flammable/Explosive limits-lower %: Not available
Flammable/Explosive limits-upper %: Not available
Extinguishing media: Foam, dry chemical or carbon dioxide.
Special fire fighting procedures: Wear self-contained breathing apparatus and full protective clothing
Unusual fire or explosion hazards: Not expected. Uncontrolled polymerization may occur at high temperatures

Hazardous combustion products: Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Irritating organic vapors.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection equipment recommended in section 8, isolate the hazard area and deny entry to unnecessary unprotected individuals.

Environmental precautions: Prevent product from entering drains or open waters.

Clean-up methods: Remove all ignition sources. Ensure adequate ventilation. Soak up with inert absorbent material. 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. Keep away from heat, spark and flame. Use only with adequate ventilation.

Storage: Store away from heat, sparks, flames, or other sources of ignition. For safe storage, store between 5°C and 25°C (41°F and 77°F) in unopened container.

Incompatible products: Refer to Section 10.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employees should complete an assessment of all workplaces to determine the need for and selection of proper exposure controls and protective equipment before each task is started.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Silica, amorphous, fumed crystal free	10 mg/m3 TWA Inhalable dust.	29 MPPCF TWA	None	None
	3mg/m3 TWA fraction. TWA	0.8 mg/m3 Respirable		

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

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

Skin protection:	Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene gloves. Butyl rubber gloves. Natural rubber gloves.
Eye/face protection:	Safety goggles or safety glasses with side shields.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Paste
Color:	White
Odor:	Mild odor
Odor Threshold:	Not available
Vapor pressure:	Less than 5 mm Hg at 24ºC (75ºF)
pH:	Not applicable
Boiling point/range:	Greater than 149ºC (300ºF)
Melting point/range:	Not available
Specific gravity:	1.1
Vapor density:	Not available
Flash Point:	110 °C (230°F)
Flammable/Explosive Limits (lower)	Not available
Flammable/Explosive Limits (upper)	Not Available
Evaporation rate:	Not available
Solubility in water:	Slight
Partition coefficient (noctanol/water):	Not available
VOC content:	<2 %, 21 grams/liter

10. STABILITY AND REACTIVITY

Stability	Stable.
Hazardous polymerization:	Will not occur.
Hazardous decomposition products:	Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Irritating organic vapors.
Incompatibility:	Strong oxidizing agents, reducing agents. Acids. Bases. Peroxides. Amines. Free radical polymerizing catalysts.
Conditions to avoid:	Heat, flames, sparks and other sources of ignition. Keep away from incompatible materials

11. TOXICOLOGICAL INFORMATION

Carcinogen Status

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Polyglycol dimethacrylate	No	No	No
Silica, amorphous, fumed crystal free	No	No	No

Hazardous components	Health Effects/Target Organs
Polyglycol dimethacrylate	Allergen, irritant
Silica, amorphous, fumed crystal free	Nuisance dust

12. ECOLOGICAL INFORMATION

Ecological information: Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of according to Federal, State and local governmental regulations.

EPA hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipment information in this section is for non-bulk packaging. Shipping classification might be different for bulk packaging.

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

Proper shipping name: Unrestricted
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA):

Proper shipping name: Unrestricted
Hazard class or division: None
Identification number: None
Packing group: None

Water Transportation (IMO/IMDG):

Proper shipping name:	Unrestricted None
Hazard class or division:	
Identification number:	None
Packing group:	None
Marine pollutant:	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 the reporting limits.
CERCLA/SARA Section 302 EHS:	None above the reporting limits.
CERCLA/SARA Section 311/312:	Immediate Health Hazard, Delayed Health Hazard
CERCLA/SARA 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). None.
California Proposition 65:	This product does not contain a chemical known to the State of California to cause cancer and 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 Domestic Substances List.
WHMIS hazard class:	D.2. B

16. OTHER INFORMATION

This MSDS was reviewed and released with new date 12/06/13

This material safety data sheets contains changes from the previous one in section1: Transport Emergency Number was changed.

ADDITIONAL INFORMATION: The information given and the recommendations made herein apply to our product(s) alone and are not combined with other product(s). Such are based on our research and on data from other reliable sources and are believed to be accurate. No guaranty of accuracy is made. It is the purchaser's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.

MATERIAL SAFETY DATA SHEET
TUF-GLIDE™ PASTE

SECTION I – PRODUCT INFORMATION

Use:	Pipe Thread Sealant
Distributor's name:	Allied Rubber & Gasket Company
	2610 Commerce Way
	Vista, Ca 92083
In case of emergency:	(800) 424-9300
For information call:	(800) 854-1015
Date prepared:	11/14/2003
Product name:	Tuf-Glide Paste

HMIS/NFPA Health: 0 Fire: 1 Reactivity: 0 Personal Protection Index: N/A

SECTION II – INFORMATION ON INGREDIENTS

Chemical Family:	Synthetic based lubricating sealant	
Hazardous Components:	**CAS No**	**Wt%**
Non-hazardous Blend	9003296/ 68037014	60-100
	9002840/ 1332587	
	12001262/ 14807966	
	13463677/ 68953582	
OSHA PEL	Unknown	
ACGIH TLV	Unknown	
Other limits of Exposure	STEL: Unknown	

SECTION III – PHYSICAL & CHEMICAL PROPERTIES

Physical State: Semi-solid fibrous (paste) **Color:** Off-white **Odor:** Mild
Boiling range/point deg F (deg C): >600 (316) **Melting Point: deg F (deg C):** None
Flash point (COC) deg F (deg C): >350 (177) **Auto ignition temperature deg F (deg C):** >500 (260)
Explosive properties: LEL: UN **UEL:** UN **Evaporation Rate (Butyl Acetate):** <0.01
Partition Coefficient (Log Pow): Not applicable **Vapor pressure (kPa):** <0.01
Density (g/cm3): 1.20 **Flammability:** Not flammable at ambient temperature.

SECTION IV – CONTINUED

Oxidizing properties: None **Water solubility:** Not soluble **pH:** Neutral
Vapor Density: >5 **Percent volatiles:** Nil **OAR Group:** Not applicable

SECTION IV – FIRE & EXPLOSION DATA

Extinguishing Media: Foam, dry powder, halon, carbon dioxide, sand, earth & water mist.
Unsuitable Extinguishing Media: Water jet.
Protective Equipment for Firefighting: Self-contained breathing apparatus.

SECTION V – HEALTH HAZARD DATA

Main Hazards – Health Effects **Eyes:** May cause irritation. **Ingestion:** May cause diarrhea.
Skin: Possible rash for persons with hypersensitivity.
Inhalation: Viscous nature may block breathing passage if inhaled.

SECTION VI – FIRST AID MEASURES

Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.
Skin: Wash thoroughly with hand cleanser, followed by soap & water. All contaminated clothing should be dry cleaned before reuse.
Ingestion: Consult physician.
Inhalation: Clear air passage and seek medical help, if respiratory difficulty continues.

SECTION VII – ACCIDENTAL RELEASE MEASURES

Personal Precaution: Wear gloves & protective overalls. **Environmental Precautions:** Avoid disposal into drains
Spillage: Scrape up bulk, then pick up residue with diatomaceous earth to avoid a walking hazard

SECTION VIII – HANDLING AND STORAGE

Handling: No special precautions necessary. **Storage:** Do not store at elevated temperatures

SECTION IX – EXPOSURE CONTROL/PERSONAL PROTECTION

Respiratory Protection: None needed. **Hand Protection:** Protective gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to moving parts in motion. **Body Protection:** Overalls.

SECTION X – STABILITY AND REACTIVITY

Stability: Chemically stable under normal conditions.
Conditions to Avoid: Powerful sources of ignition and extreme temperatures.
Materials to Avoid: Strong inorganic & organic acids & oxidizing agents.
Hazardous Decomposition Products: Burning generates smoke, airborne soot, hydrocarbons and oxides of carbon and nitrogen, and halogenated, possibly corrosive gases. Residue mainly comprised of soot & mineral oxides.

SECTION XI – TOXICOLOGICAL INFORMATION

Acute Toxicity: Not known **Irritability-Skin:** Very mild **Allergens:** None known
Skin Sensitization: Not known **Sub-acute/Sub chronic Toxicity:** Not known
Chronic Toxicity: None known **Genotoxicity**: None known. **Carcinogens**: None
NTP: No **IARC:** No **OSHA:** No **EC Classification (67/548/EEC):** No
California Prop 65 Agents: None known. **LC-50:** >4000 mg/kg (extrapolated from component data)
LD-50: Not applicable

SECTION XII – ECOLOGICAL INFORMATION

Possible Effects: Unlikely to act as marine pollutant.
Behavior: Relatively well behaved. Bioaccumulation potential nil.
Environmental Fate: Highly unlikely to cause notable contamination. Nontoxic to marine or land organisms.

SECTION XIII – WASTE DISPOSAL

Product Disposal: Do not incinerate. Contact waste disposal company or local authority for advice.
Container Disposal: Pails without liner see "Product Disposal". Pails with Plastic Liner – pail can only be disposed of via standard waste disposal services, recycled or reused. Liner – see "Product Disposal".

SECTION XIV – TRANSPORT INFORMATION

Not classified as hazardous for transport.
D.O.T. : Nonhazardous **UN No.** : Not applicable **Road & Rail Transport (ADR / RID)** : Not applicable **Sea Transport (IMO & IMDG)** : Not applicable **Air Transport (ICAO & IATA)** :Not applicable

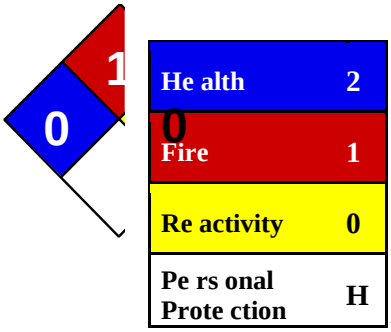
SECTION XV – REGULATORY INFORMATION

Labeling Information: None needed.
R. Phrases: R22 harmful if swallowed.
Ozone Depleting Chemicals: N/A
TSCA: All components are listed.
Canadian DSL: All components are listed
40 CFR Part 372 (SARA Section 313): Not applicable
S. Phrases: None applicable, as known.
EC Annex 1 Classification: Not applicable
SARA 311 / 312: None
WHIMS (Canada): Not regulated
RCRA Hazard Class: Nonhazardous
CERCLA: Nonhazardous

Disclaimer

The information contained herein is accurate and reliable as of the date issued to the best of the manufacturer's knowledge. **ARGCO** *doesn't warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising from the use thereof. It is the user's responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.*

END OF MATERIAL SAFETY DATA SHEET



Material Safety Data Sheet

Propylene glycol MSDS

ction 1: Chemical Product and Company Identification

ycol

LP2974

ylene glycol

1,2-dihydroxypropane

Glycol

OHCH2OH

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

ction 2: Composition and Information on Ingredients

	CAS #	% by Weight
	57-55-6	100

ents: Propylene glycol: ORAL (LD50): Acute: 20000 mg/kg [Rat]. 22000 mg/kg [Mouse]. mg/kg [Rabbit].

Section 3: Hazards Identification

lightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of

s:
contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not CTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

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

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 371°C (699.8°F)

Flash Points: CLOSED CUP: 99°C (210.2°F). OPEN CUP: 107°C (224.6°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.5%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

Storage:
Hygroscopic. Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 10 (mg/m3) from AIHA Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Oily liquid.)

Odor: Practically Odorless.

Taste: Practically Tasteless.

Molecular Weight: 76.1g/mole

Color: Colorless. Clear **pH (1%**

soln/water): Not available.

Boiling Point: 188°C (370.4°F)

Melting Point: -59°C (-74.2°F)

Critical Temperature: Not available.

Specific Gravity: 1.036 (Water = 1)

Vapor Pressure:
0 kPa (@ 20°C) 0.08 mmHg at 20 C 0.129 mmHg at 25 C

Vapor Density: 2.62 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.9

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, acetone.

Solubility: Soluble in cold water, hot water, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat, exposure to moist air or water

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Hygroscopic; keep container tightly closed. Incompatible with chloroformates, strong acids (nitric acid, hydrofluloric acid), caustics, aliphatic amines, isocyanates, strong oxidizers, acid anhydrides, silver nitrate, reducing agents.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 18500 mg/kg [Rabbit]. Acute dermal toxicity (LD50): 20800 mg/kg [Rabbit].

Chronic Effects on Humans: May cause damage to the following organs: central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenic). May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause mild skin irritation. It may be absorbed through the skin and cause systemic effects similar to those of ingestion. Eyes: May cause mild eye irritation with some immediate, transitory stinging, lacrimation, blepharospasm, and mild transient conjunctival hyperemia. There is no residual discomfort or injury once it is washed away. Inhalation: May cause respiratory tract irritation. Ingestion: It may cause gastrointestinal tract irritation. It may affect behavior/central nervous system(CNS depression, general anesthetic, convulsions, seizures, somnolence, stupor, muscle contraction or spasticity, coma), brain (changes in surface EEG), metabolism, blood (intravascular hemolysis, white blood cells - decreased neutrophil function), respiration (respiratory stimulation, chronic pulmonary edema, cyanosis), cardiovascular system(hypotension, bradycardia, arrhythmias, cardiac arrest), endocrine system (hypoglycemia), urinary system (kidneys), and liver. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause allergic contact dermatitis. Ingestion: Prolonged or repeated ingestion may cause hyperglycemia and may affect behavior/CNS (symptoms similar to that of acute ingestion). Inhalation: Prolonged or repeated inhalation may affect behavior/CNS (with symptoms similar to ingestion), and spleen

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): >5000 mg/l 24 hours [Goldfish]. >10000 mg/l 48 hours [guppy]. >10000 mg/l 48 hours [water flea].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Propylene glycol Minnesota: Propylene glycol TSCA 8(b) inventory: Propylene glycol

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
R21/22- Harmful in contact with skin and if swallowed. S24/25- Avoid contact with skin and eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Supplier MSDS -LOLI -RTECS -HSDB

Other Special Considerations: Not available.

Created: 10/10/2005 08:24 PM

Last Updated: 05/21/2013 12:00 PM

GHS SAFETY DATA SHEET

Spears® FS-5 One-Step Low VOC Cement for CPVC Fire Sprinkler Systems

Date Revised: M A Y 2 0 1 3
Supersedes: JUN 2011

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Spears® FS-5 One-Step Low VOC Cement for CPVC Fire Sprinkler Systems**

PRODUCT USE: Solvent Cement for CPVC Plastic Pipe

MANUFACTURER: Spears® Manufacturing Company
15853 Olden Street
Sylmar, CA 91342
Tel. 818-364-1611

SUPPLIER:

EMERGENCY: Transportation/Medical issues: Tel. 800-535-5053 or 352-323-3500 (outside of USA) INFOTRAC

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2B				

GHS LABEL:   **OR**  

Signal Word: **Danger**

WHMIS CLASSIFICATION: CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P337+P313: Get medical advice/attention
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	30 - 60
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	2 - 25
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	5 - 15

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.

Acetone	67-64-1	200-662-2	05-2116297713-35-0000	1 - 5

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).

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.

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
Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

	HMIS	NFPA	
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
			4-Severe

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).

Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course. **Methods for Cleaning up:** Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel. **Materials not to be used for clean up:** Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods. Do not eat, drink or smoke while handling.

Storage: Store in ventilated room or shade below 33 °C (90 °F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates. Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL:
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	
Acetone	500 ppm	750 ppm	1000 ppm	
Cyclohexanone	20 ppm	50 ppm	50 ppm	

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits. **Personal Protective Equipment (PPE):**

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Red, heavy syrupy liquid

Odor: Ether-Like
pH: Not Applicable
Odor Threshold: 0.88 ppm (Cyclohexanone)

Melting/Freezing Point: -108.5 °C (-163.3 °F) Based on first melting component: THF
Boiling Point: 66 °C (151 °F) Based on first boiling component: THF
Flash Point: -20 °C (-4 °F) TCC based on THF
Specific Gravity: 0.986 ± 0.01 @ 23 °C ± 2 ° (73 °F ± 3.6 °)
Solubility: Solvent portion soluble in water. Resin portion separates out.
Boiling Range: 66 °C (151 °F) to 156 °C (313 °F)
Evaporation Rate: > 1.0 (BUAC = 1)
Flammability: Category 2
Flammability Limits: **LEL:** 1.1% based on Cyclohexanone **UEL:** 11.8% based on THF

Partition Coefficient n-octanol/water: Not Available
Auto-ignition Temperature: 321 °C (610 °F) based on THF
Decomposition Temperature: Not Applicable
Vapor Pressure: 129 mm Hg @ 20 °C (68 °F) based on THF
Vapor Density: <2 (Air = 1)
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

Likely Routes of Exposure: Inhalation, Eye and Skin Contact **Acute symptoms and effects:**

Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.

Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid. **Skin Contact:** Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact. **Ingestion:** May cause nausea, vomiting, diarrhea and mental sluggishness. **Chronic (long-term) effects:** None known to humans

Toxicity:	LD_{50}	LC_{50}
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)

RepNot Established **roductive Effects** Not Established **Teratogenicity** Not Established **Mutagenicity E**Not Established **mbryotoxicity** **Sens**Not Established **itization to Product Syste**Not Established **rgistic Products**

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None Known

Mobility: In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of < 490 g/l.

Degradability: 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 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:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant

Symbols: F, Xi

Risk Phrases: R11: Highly flammable.
R36/37: Irritating to eyes and respiratory system.

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.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33: Take precautionary measures against static discharges.

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS) R66: Repeated exposure may cause skin dryness or cracking R67: Vapors may cause drowsiness and dizziness S25: Avoid contact with eyes.

SECTION 16 - OTHER INFORMATION

Specification Information:

Department issuing data sheet: Environmental Health & Safety All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances). **E-mail address:** EHSInfo@SpearsMfg.net

Training necessary: Yes, training in practices and procedures contained in product literature.

Reissue date / reason for reissue: 05-01-2013 / Technical Update

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.

MATERIAL SAFETY DATA SHEET
Thread Seal Tape with PTFE (Industrial)

SECTION I – PRODUCT INFORMATION

Distributor's name:	Allied Rubber & Gasket Company 2610 Commerce Way Vista, Ca 92081
In case of emergency:	Contact your local poison control center
For information call:	(800) 854-1015
Date prepared:	6/3/2010
Product name:	Tuf-Glide™ Thread Seal Tape with PTFE

SECTION II – HAZARDOUS INGREDIENTS

Hazardous Components:	Polytetrafluroethylene (PTFE) (Specific Chemical Identity)
OSHA PEL:	Not Applicable
ACHIH TLV:	Not Applicable
%:	100%
CAS No.:	9002-84

PTFE tape, as such, is not a hazardous material. It is a processed solid polymer.

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling point:	Not Applicable	**Vapor pressure:**	Not Applicable
Vapor Density:	Not Applicable	**Solubility in Water:**	Insoluble
Appearance & odor:	White & None	**Specific gravity (H2O = 1):**	2.1 – 2.2
Melting point:	-341ºC (642ºF)	**Evaporation Rate:**	Not Applicable

SECTION IV – FIRE AND EXPLOSTION DATA

Flash Point:	Not Applicable	**Flammable Limits:**	Not Applicable
LEL:	Not Applicable	**UEL:**	Not Applicable

Extinguishing Media:	Not Applicable; Use media suitable for surrounding fire
Specific Fire Fighting Procedures:	Self contained breathing apparatus with full face piece and protective clothing if involved with other materials
Unusual Fire & Explosion hazards:	Product will emit toxic fumes at high temperatures: Above 800ºF – Tetrafluroethylene

Above 825ºF – Hexafluropropylene
Above 885ºF – Perfluroisbutylene
Above 930ºF – Carbon Fluoride

SECTION V– REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Heating above 750ºF for prolonged periods
Instability (materials to avoid): Molten alkali metals; interhalogen compounds
Hazardous Decomposition or See section 4
Hazardous Polymerization: Will not occur
Conditions to avoid: None

Routes of Entry:
Inhalation? No toxic effects
Skin? Non-irritating/absorbing
Ingestion? PTFE shown to be inert when ingested by rats

Health Hazards
Acute: Flu like symptoms
Chronic: Could be fatal

Carcinogenicity:
NTP? No
ARC monographs? No
OSHA regulated? No

Signs & Symptoms of Exposure: Flu like fever
Medical Conditions Generally Aggravated: Respiratory Inflammation

Emergency & First Aid Procedures: Move to fresh air, refer to physician

SECTION VI – PRECAUTIONS FOR SAFE HANDLING & USE

Steps to be taken in case material is released or Spilled: Not Applicable

Waste disposal method: No unusual precautions

Precautions to be taken in handling & storage: No unusual precautions

Other precautions: No unusual precautions

SECTION VII – CONTROL MEASURES

Respiratory Protection: Not Applicable except in Section 4

Ventilation: Not Applicable
Protective Gloves: Not Applicable
Eye Protection: Not Applicable
Other Protective Clothing or Equipment: Not Applicable
Work/Hygienic Practices: No smoking while handling material; Clean spills immediately

SECTION VIII – LEED INFORMATION

Volatile Organic Compounds: 0 grams per liter

Please note: If you repackage or otherwise redistribute this product to industrial customers, a notice similar to this one should be sent to that customer.

Safety Data Sheet

RUST-OLEUM CORPORATION
* Trusted Quality Since 1921 * www.rustoleum.com

1. Identification

Product Name: STRUST SSPR 6PK FLAT GALVANIZING COMPND

Revision Date: 5/15/2015

Product Identifier: 7785830

Supercedes Date: New SDS

Product Use/Class: Galvanizing Compound/Aerosols

Supplier:
Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Manufacturer:
Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Preparer: Regulatory Department

Emergency Telephone: 24 Hour Hotline: 847-367-7700

2. Hazard Identification

EMERGENCY OVERVIEW: Harmful if swallowed. Extremely flammable liquid and vapor. Vapors may cause flash fire or explosion. Contents Under Pressure. Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. May cause eye, skin, or respiratory tract irritation. KEEP OUT OF REACH OF CHILDREN. Harmful if inhaled. Causes eye irritation. Use ventilation necessary to keep exposures below recommended exposure limits, if any. Vapor Harmful. Causes Eye, Skin, Nose, and Throat Irritation.

Classification

Symbol(s) of Product

Signal Word Danger

Possible Hazards
65% of the mixture consists of ingredient(s) of unknown acute toxicity

GHS HAZARD STATEMENTS

Flammable Aerosol, category 1	H222	Extremely flammable aerosol.
Flammable Liquid, category 1	H224	Extremely flammable liquid and vapor.
Acute Toxicity, Oral, category 5	H303	May be harmful if swallowed.
Acute Toxicity, Dermal, category 5	H313	May be harmful in contact with skin.
Skin Irritation, category 2	H315	Causes skin irritation.
Eye Irritation, category 2	H319	Causes serious eye irritation.
Acute Toxicity, Inhalation, category 4	H332	Harmful if inhaled.
STOT, single exposure, category 3, RTI	H335	May cause respiratory irritation.
STOT, single exposure, category 3, NE	H336	May cause drowsiness or dizziness.
Aspiration Hazard, category 2	H305	May be harmful if swallowed and enters airways.

Eye Irritation, category 2B	H320	Causes eye irritation.
Flammable Aerosol, category 1	H280	Contains gas under pressure; may explode if heated.
Germ Cell Mutagenicity, category 1B	H340	May cause genetic defects. Classified as mutagenic Category 1 if one ingredient is present at or above 0.1%. Applies to liquids, solids (w/w units) and gases (v/v). The substance may also have its own exposure limit. Routes of exposure are dependent on ingredient form.
Carcinogenicity, category 1B	H350	May cause cancer. Classified as carcinogenic Category 1 on the basis of epidemiological and/or animal data. Mixtures are classified as carcinogenic when at least 1 ingredient has been classified as carcinogenic and is present at 0.1% or above Routes of exposure are dependant on ingredient form.
Reproductive Toxicity, category 2	H361	Suspected of damaging fertility or the unborn child. Classifed Category 2 suspected human reproductive toxicant irreversible effects such as structural malfunctions, embryo/foetal lethality, post natal functional deficiencies.
STOT, repeated exposure, category 2	H373	May cause damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
Acute Toxicity, Oral, category 4	H302	Harmful if swallowed.

GHS LABEL PRECAUTIONARY STATEMENTS

P211	Do not spray on an open flame or other ignition source.
P251	Pressurized container: Do not pierce or burn, even after use.
P375	Fight fire remotely due to the risk of explosion.
P102	Keep out of reach of children.
P103	Read label before use.
P234	Keep only in original container.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash … thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.
P374	Fight fire with normal precautions from a reasonable distance.
P402	Store in a dry place.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C / 122°F.
P403+P235	Store in a well-ventilated place. Keep cool.
P362	Take off contaminated clothing and wash before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P201	Obtain special instructions before use.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P350	Gently wash with plenty of soap and water.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.

3. Composition/Information On Ingredients

HAZARDOUS SUBSTANCES

Chemical Name	CAS-No.	Wt.% Range	GHS Symbols	GHS Statements
Zinc	7440-66-6	25-50	GHS02	H228-250-251-260
Toluene	108-88-3	10-25	GHS02-GHS07GHS08	H225-302-332-361-336-373-315
Propane	74-98-6	10-25		
Mineral Spirits	64742-88-7	2.5-10	GHS06-GHS08	H331-372
n-Butane	106-97-8	2.5-10		
Stoddard Solvent	8052-41-3	1.0-2.5	GHS02-GHS08	H224-340-350-372
Ethylbenzene	100-41-4	0.1-1.0	GHS02-GHS07	H225-332

The text for GHS Hazard Statements shown above (if any) is given in the "16. Other Information" section.

4. First-aid Measures

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

FIRST AID - SKIN CONTACT: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

FIRST AID - INHALATION: If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation.

FIRST AID - INGESTION: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention. If swallowed, get medical attention.

5. Fire-fighting Measures

EXTINGUISHING MEDIA: Alcohol Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: FLASH POINT IS LESS THAN 20°F. EXTREMELY FLAMMABLE LIQUID AND VAPOR!Water spray may be ineffective. Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Perforation of the pressurized container may cause bursting of the can. Closed containers may explode when exposed to extreme heat due to buildup of steam. No unusual fire or explosion hazards noted.

SPECIAL FIREFIGHTING PROCEDURES: Evacuate area and fight fire from a safe distance. Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Remove all sources of ignition, ventilate area and remove with inert absorbent and nonsparking tools. Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Ventilate area, isolate spilled material, and remove with inert absorbent. Dispose of contaminated absorbent, container, and unused contents in accordance with local, state, and federal regulations.

7. Handling and Storage

HANDLING: Wash thoroughly after handling. Wash hands before eating. Use only in a well-ventilated area. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Remove contaminated clothing and launder before reuse. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing.

STORAGE: Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Contents under pressure. Do not store above 120 ° F. Store large quantities in buildings designed and protected for storage of NFPA Class I flammable liquids. Contents under pressure. Do not expose to heat or store above 120 ° F. Product should be stored in tightly sealed containers and protected from heat, moisture, and foreign materials. Store in a dry, well ventilated place. Keep container tightly closed when not in use. Keep away from heat, sparks, flame and sources of ignition. Avoid excess heat.

8. Exposure Controls/Personal Protection

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLVTWA	ACGIH TLVSTEL	OSHA PEL-TWA	OSHA PELCEILING
Zinc	7440-66-6	50.0	10 mg/m3 (Dust)	N.E.	15 mg/m3 (Dust)	N.E.
Toluene	108-88-3	25.0	20 ppm	N.E.	200 ppm	300 ppm
Propane	74-98-6	15.0	1000 ppm	N.E.	1000 ppm	N.E.
Mineral Spirits	64742-88-7	10.0	100 ppm	N.E.	100 ppm	N.E.
n-Butane	106-97-8	5.0	1000 ppm	1000 ppm	N.E.	N.E.
Stoddard Solvent	8052-41-3	5.0	100 ppm	N.E.	500 ppm	N.E.
Ethylbenzene	100-41-4	1.0	20 ppm	125 ppm	100 ppm	N.E.

PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation. Provide general dilution of local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

SKIN PROTECTION: Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection. Use gloves to prevent prolonged skin contact.

EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.

OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application. Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications.

HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

9. Physical and Chemical Properties

Appearance:	Liquid	**Physical State:**	Liquid
Odor:	Solvent Like	**Odor Threshold:**	N.E.
Relative Density:	1.319	**pH:**	N.D.
Freeze Point, °C:	N.D.	**Viscosity:**	N.D.
Solubility in Water:	Slight	**Partition Coefficient, noctanol/water:**	No Information
Decompostion Temp., °C:	No Information		
Boiling Range, °C:	-11 - 400	**Explosive Limits, vol%:**	0.7 - 9.5
Flammability:	Does not Support Combustion	**Flash Point, °C:**	>94
Evaporation Rate:	Faster than Ether	**Auto-ignition Temp., °C:**	No Information
Vapor Density:	Heavier than Air	**Vapor Pressure:**	N.D.

(See "Other information" Section for abbreviation legend)

10. Stability and Reactivity

CONDITIONS TO AVOID: Avoid temperatures above 120 ° F. Avoid all possible sources of ignition. Avoid contact with strong acid and strong bases.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

HAZARDOUS DECOMPOSITION: By open flame, carbon monoxide and carbon dioxide. When heated to decomposition, it emits acrid smoke and irritating fumes. Contains solvents which may form carbon monoxide, carbon dioxide, and formaldehyde.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

11. Toxicological information

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Causes Serious Eye Irritation

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: May be absorbed through the skin in harmful amounts. Substance may cause slight skin irritation. Prolonged or repeated contact may cause skin irritation. May cause skin irritation. Allergic reactions are possible.

EFFECTS OF OVEREXPOSURE - INHALATION: Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs. Prolonged or excessive inhalation may cause respiratory tract irritation.

EFFECTS OF OVEREXPOSURE - INGESTION: Aspiration hazard if swallowed; can enter lungs and cause damage. Harmful if swallowed.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: IARC lists Ethylbenzene as a possible human carcinogen (group 2B). Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis, and blurred vision) and/or damage.

PRIMARY ROUTE(S) OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Chemical Name	Oral LD50	Dermal LD50	Vapor LC50
108-88-3	Toluene	636 mg/kg Rat	8390 mg/kg Rabbit	12.5 mg/L Rat
74-98-6	Propane	N.I.	N.I.	658 mg/L Rat
64742-88-7	Mineral Spirits	>5000 mg/kg Rat	3000 mg/kg Rabbit	>5.28 mg/L Rat
100-41-4	Ethylbenzene ation	3500 mg/kg Rat	15354 mg/kg Rabbit	17.2 mg/L Rat

N.I. - No Infor

12. Ecological Information

ECOLOGICAL INFORMATION: Product is a mixture of listed components. Product is a mixture of listed components.

13. Disposal Information

DISPOSAL INFORMATION: Dispose of material in accordance to local, state, and federal allow to enter waterways, wastewater, soil, storm drains or sewer systems.

14. Transport Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)	TDG (Canada)
UN Number:	N.A.	1950	1950	N.A.
Shipping Name:	Paint Products in **Proper** Limited Quantities	Aerosols	Aerosols	Paint Products in Limited Quantities
Hazard Class:	N.A.	2.1	2.1	N.A.
Packing Group:	N.A.	N.A.	N.A.	N.A.
Limited Quantity:	Yes	Yes	Yes	Yes

15. Regulatory Information

U.S. Federal Regulations:

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Pressure Hazard, Acute Health Hazard, Chronic Health Hazard

Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS-No.
Zinc	7440-66-6
Toluene	108-88-3
Ethylbenzene	100-41-4

Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported

from the United States: No TSCA 12(b) components exist in this product.

CALIFORNIA PROPOSITION 65:

WARNING: This product contains a substance known to the State of California to cause cancer.

Chemical Name	CAS-No.
Ethylbenzene	100-41-4
Cadmium Compounds	7440-43-9
Benzene	71-43-2
Lead Compounds	7439-92-1

CALIFORNIA PROPOSITION 65 REPRODUCTIVE TOXINS

WARNING: This product contains a substance known to the State of Cali
harm.

Chemical Name	CAS-No.
Toluene	108-88-3
Cadmium Compounds	7440-43-9
Benzene	71-43-2
Lead Compounds	7439-92-1

International Regulations:

CANADIAN WHMIS:

This SDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

16. Other Information

HMIS RATINGS

Health: 2* **Flammability:** 4 **Physical Hazard:** 0 **Personal Protection:** X

CANADIAN WHMIS CLASS: AB5 D2A

NFPA RATINGS

Health: 2 **Flammability:** 4 **Instability** 0

VOLATILE ORGANIC COMPOUNDS, g/L: 610

MSDS REVISION DATE: 5/15/2015

REASON FOR REVISION: No Information

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H228	Flammable solid.
H250	Catches fire spontaneously if exposed to air.
H251	Self-heating: may catch fire.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H302	Harmful if swallowed.

H315 Causes skin irritation. H331 Toxic if inhaled.

H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.

H340 May cause genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

H350 May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

H361	Suspected of damaging fertility or the unborn child. Classifed Category 2 suspected human reproductive toxicant irreversible effects such as structural malfunctions, embryo/foetal lethality, post natal functional deficiencies.
H372	Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
H373	May cause damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02

GHS06

GHS07

GHS08

Safety Data Sheet

RUST-OLEUM CORPORATION
* Trusted Quality Since 1921 * www.rustoleum.com

1. Identification

Product Name: PTOUCH 2X +SSPR 6PK GLOSS COLONIAL
Revision Date: 5/15/2015 RED
Product Identifier: 249116
Supercedes Date: 5/6/2015
Product Use/Class: Topcoat/Aerosol

Supplier:
Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Manufacturer:
Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Preparer: Regulatory Department

Emergency Telephone: 24 Hour Hotline: 847-367-7700

2. Hazard Identification

EMERGENCY OVERVIEW: Harmful if swallowed. Extremely flammable liquid and vapor. Vapors may cause flash fire or explosion. Contents Under Pressure. Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. May cause eye, skin, or respiratory tract irritation. KEEP OUT OF REACH OF CHILDREN. Harmful if inhaled. Causes eye irritation. Use ventilation necessary to keep exposures below recommended exposure limits, if any. Vapor Harmful. Causes Eye, Skin, Nose, and Throat Irritation.

Classification

Symbol(s) of Product

Signal Word Danger

Possible Hazards
65% of the mixture consists of ingredient(s) of unknown acute toxicity

GHS HAZARD STATEMENTS

Flammable Aerosol, category 1	H222	Extremely flammable aerosol.
Flammable Liquid, category 1	H224	Extremely flammable liquid and vapor.
Acute Toxicity, Oral, category 5	H303	May be harmful if swallowed.
Acute Toxicity, Dermal, category 5	H313	May be harmful in contact with skin.
Skin Irritation, category 2	H315	Causes skin irritation.
Eye Irritation, category 2	H319	Causes serious eye irritation.
Acute Toxicity, Inhalation, category 4	H332	Harmful if inhaled.
STOT, single exposure, category 3, RTI	H335	May cause respiratory irritation.
STOT, single exposure, category 3, NE	H336	May cause drowsiness or dizziness.
Aspiration Hazard, category 2	H305	May be harmful if swallowed and enters airways.
Eye Irritation, category 2B	H320	Causes eye irritation.

Flammable Aerosol, category 1	H280	Contains gas under pressure; may explode if heated.
Germ Cell Mutagenicity, category 1B	H340	May cause genetic defects. Classified as mutagenic Category 1 if one ingredient is present at or above 0.1%. Applies to liquids, solids (w/w units) and gases (v/v). The substance may also have its own exposure limit. Routes of exposure are dependent on ingredient form.
Carcinogenicity, category 1B	H350	May cause cancer. Classified as carcinogenic Category 1 on the basis of epidemiological and/or animal data. Mixtures are classified as carcinogenic when at least 1 ingredient has been classified as carcinogenic and is present at 0.1% or above Routes of exposure are dependant on ingredient form.
Skin Corrosion, category 1	H314	Causes severe skin burns and eye damage.

GHS LABEL PRECAUTIONARY STATEMENTS

P211	Do not spray on an open flame or other ignition source.
P251	Pressurized container: Do not pierce or burn, even after use.
P375	Fight fire remotely due to the risk of explosion.
P102	Keep out of reach of children.
P103	Read label before use.
P234	Keep only in original container.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash … thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.
P374	Fight fire with normal precautions from a reasonable distance.
P402	Store in a dry place.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C / 122°F.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P403+P235	Store in a well-ventilated place. Keep cool.
P362	Take off contaminated clothing and wash before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P201	Obtain special instructions before use.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P350	Gently wash with plenty of soap and water.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.

3. Composition/Information On Ingredients

HAZARDOUS SUBSTANCES

Chemical Name	CAS-No.	Wt.% Range	GHS Symbols	GHS Statements
Acetone	67-64-1	25-50	GHS02-GHS07	H225-336-319
Propane	74-98-6	10-25		
n-Butane	106-97-8	2.5-10		
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	2.5-10	GHS08	H340-350

Xylene (mixed isomers)	1330-20-7	2.5-10	GHS02-GHS07	H226-312-332-315
Solvent Naphtha, Light Aromatic	64742-95-6	1.0-2.5	GHS08	H340-350
Barium Sulfate	7727-43-7	1.0-2.5		
1,2,4-Trimethylbenzene	95-63-6	1.0-2.5	GHS02-GHS07	H226-335-332-315-319
Ethylbenzene	100-41-4	1.0-2.5	GHS02-GHS07	H225-332
Iron Oxide	1309-37-1	1.0-2.5		
Titanium Dioxide	13463-67-7	0.1-1.0		

The text for GHS Hazard Statements shown above (if any) is given in the "16. Other Information" section.

4. First-aid Measures

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

FIRST AID - SKIN CONTACT: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

FIRST AID - INHALATION: If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation.

FIRST AID - INGESTION: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention. If swallowed, get medical attention.

5. Fire-fighting Measures

EXTINGUISHING MEDIA: Alcohol Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: FLASH POINT IS LESS THAN 20°F. EXTREMELY FLAMMABLE LIQUID AND VAPOR!Water spray may be ineffective. Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Perforation of the pressurized container may cause bursting of the can. Closed containers may explode when exposed to extreme heat due to buildup of steam. No unusual fire or explosion hazards noted.

SPECIAL FIREFIGHTING PROCEDURES: Evacuate area and fight fire from a safe distance. Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Remove all sources of ignition, ventilate area and remove with inert absorbent and nonsparking tools. Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Ventilate area, isolate spilled material, and remove with inert absorbent. Dispose of contaminated absorbent, container, and unused contents in accordance with local, state, and federal regulations.

7. Handling and Storage

HANDLING: Wash thoroughly after handling. Wash hands before eating. Use only in a well-ventilated area. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Remove contaminated clothing and launder before reuse. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing.
STORAGE: Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Contents under pressure. Do not store above 120 ° F. Store large quantities in buildings designed and protected for storage of NFPA Class I flammable liquids. Contents under pressure. Do not expose to heat or store above 120 ° F. Product should be stored in tightly sealed containers and protected from heat, moisture, and foreign materials. Store in a dry, well ventilated place. Keep container tightly closed when not in use. Keep away from heat, sparks, flame and sources of ignition. Avoid excess heat.

8. Exposure Controls/Personal Protection

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLVTWA	ACGIH TLVSTEL	OSHA PEL-TWA	OSHA PELCEILING
Acetone	67-64-1	40.0	500 ppm	750 ppm	1000 ppm	N.E.
Propane	74-98-6	20.0	1000 ppm	N.E.	1000 ppm	N.E.
n-Butane	106-97-8	10.0	1000 ppm	1000 ppm	N.E.	N.E.
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	10.0	200 mg/m3	N.E.	N.E.	N.E.
Xylene (mixed isomers)	1330-20-7	10.0	100 ppm	150 ppm	100 ppm	N.E.
Solvent Naphtha, Light Aromatic	64742-95-6	5.0	N.E.	N.E.	N.E.	N.E.
Barium Sulfate	7727-43-7	5.0	5 mg/m3 (Inhlalable fraction w/o asbestos and <1% cryst.silica)	N.E.	15 mg/m3 [Total Dust]	N.E.
1,2,4-Trimethylbenzene	95-63-6	5.0	25 ppm (NIOSH REL)	N.E.	N.E.	N.E.
Ethylbenzene	100-41-4	5.0	20 ppm	125 ppm	100 ppm	N.E.
Iron Oxide	1309-37-1	5.0	5 mg/m3 (Respirable Dust, OSHA)	N.E.	15 mg/m3 (Total Dust)	N.E.
Titanium Dioxide	13463-67-7	1.0	10 mg/m3 (Total Dust)	N.E.	15 mg/m3 [Total Dust]	N.E.

PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation. Provide general dilution of local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

SKIN PROTECTION: Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection. Use gloves to prevent prolonged skin contact.

EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.

OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application. Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications.

HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

9. Physical and Chemical Properties

Appearance:	Aerosolized Mist	**Physical State:**	Liquid
Odor:	Solvent Like	**Odor Threshold:**	N.E.
Relative Density:	0.749	**pH:**	N.A.
Freeze Point, °C:	N.D.	**Viscosity:**	N.D.
Solubility in Water:	Slight	**Partition Coefficient, noctanol/water:**	No Information
Decompostion Temp., °C:	No Information		
Boiling Range, °C:	-11 - 662	**Explosive Limits, vol%:**	0.7 - 13.0
Flammability:	Does not Support Combustion	**Flash Point, °C:**	-105
Evaporation Rate:	Faster than Ether	**Auto-ignition Temp., °C:**	No Information
Vapor Density:	Heavier than Air	**Vapor Pressure:**	N.D.

(See "Other information" Section for abbreviation legend)

10. Stability and Reactivity

CONDITIONS TO AVOID: Avoid temperatures above 120 ° F. Avoid all possible sources of ignition. Avoid contact with strong acid and strong bases.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

HAZARDOUS DECOMPOSITION: By open flame, carbon monoxide and carbon dioxide. When heated to decomposition, it emits acrid smoke and irritating fumes. Contains solvents which may form carbon monoxide, carbon dioxide, and formaldehyde.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

11. Toxicological information

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Causes Serious Eye Irritation

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Substance may cause slight skin irritation. Prolonged or repeated contact may cause skin irritation. May cause skin irritation. Allergic reactions are possible.

EFFECTS OF OVEREXPOSURE - INHALATION: Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs. Prolonged or excessive inhalation may cause respiratory tract irritation.

EFFECTS OF OVEREXPOSURE - INGESTION: Aspiration hazard if swallowed; can enter lungs and cause damage. Harmful if swallowed.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: IARC lists Ethylbenzene as a possible human carcinogen (group 2B). Overexposure to xylene in laboratory animals has been associated with liver abnormalities, kidney, lung, spleen, eye and blood damage as well as reproductive disorders. Effects in humans, due to chronic overexposure, have included liver, cardiac abnormalities and nervous system damage. Contains Titanium Dioxide. Titanium Dioxide is listed as a Group 2B-"Possibly carcinogenic to humans" by IARC. No significant exposure to Titanium Dioxide is thought to occur during the use of products in which Titanium Dioxide is bound to other materials, such as in paints during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of Titanium Dioxide in the formula. (Ref: IARC Monograph, Vol. 93, 2010)May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis, and blurred vision) and/or damage.

PRIMARY ROUTE(S) OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Chemical Name	Oral LD50	Dermal LD50	Vapor LC50
74-98-6	Propane	N.I.	N.I.	658 mg/L Rat
64742-49-0	Naphtha, Petroleum, Hydrotreated Light	>5000 mg/kg Rat	>3160 mg/kg Rabbit	N.I.
1330-20-7	Xylene (mixed isomers) 4300 mg/kg Rat N.I. 47635 mg/L Rat 64742-95-6 Solvent Naphtha, Light Aromatic N.I. >2000 mg/kg Rabbit N.I. 95-63-6 1,2,4-Trimethylbenzene 3280 mg/kg Rat >3160 mg/kg Rabbit N.I. 100-41-4 Ethylbenzene 3500 mg/kg Rat 15354 mg/kg Rabbit 17.2 mg/L Rat			
1309-37-1	Iron Oxide	>10000 mg/kg Rat	N.I.	N.I.
13463-67-7	Titanium Dioxide	>10000 mg/kg Rat	N.I.	N.I.

N.I. - No Information

12. Ecological Information

ECOLOGICAL INFORMATION: Product is a mixture of listed components. Product is a mixture of listed components.

13. Disposal Information

DISPOSAL INFORMATION: Dispose of material in accordance to local, state, and federal regulations and ordinances. Do not allow to enter waterways, wastewater, soil, storm drains or sewer systems.

14. Transport Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)	TDG (Canada)
UN Number:	N.A.	1950	1950	N.A.
Proper Shipping Name:	Paint Products in Limited Quantities	Aerosols	Aerosols	Paint Products in Limited Quantities
Hazard Class:	N.A.	2.1	2.1	N.A.
Packing Group:	N.A.	N.A.	N.A.	N.A.
Limited Quantity:	Yes	Yes	Yes	Yes

15. Regulatory Information

U.S. Federal Regulations:

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Pressure Hazard, Acute Health Hazard, Chronic Health Hazard

Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS-No.
Xylene (mixed isomers)	1330-20-7
1,2,4-Trimethylbenzene	95-63-6
Ethylbenzene	100-41-4

Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

No TSCA 12(b) components exist in this product.

CALIFORNIA PROPOSITION 65:

WARNING: This product contains a substance known to the State of California to cause cancer.

Chemical Name	CAS-No.
Ethylbenzene	100-41-4
Titanium Dioxide	13463-67-7
Crystalline Silica / Quartz	14808-60-7
Benzene	71-43-2

Lead Compounds	7439-92-1
Cadmium Compounds	7440-43-9

CALIFORNIA PROPOSITION 65 REPRODUCTIVE TOXINS

WARNING: This product contains a substance known to the State of Cali
harm.

Chemical Name	CAS-No.
Toluene	108-88-3
Benzene	71-43-2
Cadmium Compounds	7440-43-9
Lead Compounds	7439-92-1

International Regulations:

CANADIAN WHMIS:

This SDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

16. Other Information

HMIS RATINGS

Health: 2* **Flammability:** 4 **Physical Hazard:** 0 **Personal Protection:** X

CANADIAN WHMIS CLASS: AB5 D2A

NFPA RATINGS

Health: 2 **Flammability:** 4 **Instability** 0

VOLATILE ORGANIC COMPOUNDS, g/L: 518

MSDS REVISION DATE: 5/15/2015

REASON FOR REVISION: No Information

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

H340 May cause genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

H350 May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02

GHS07

GHS08

Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

Safety Data Sheet

SDS ID: Stock Code WL
Revision date: April 9, 2015

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **Wadco® Light Cutting and Threading Oil**
Synonyms: Not Available
Chemical family: Not Available
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **330-334-2524 Available during normal business hours**

Section 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Not expected to ause a severe emergency hazard.

Inhalation: Vapors or mist in high concentrations, as generated from spraying or heating in an enclosed space my cause minimal irritation.

Ingestion: If more than several mouthfuls are swallowed, abdominal discomfort, nausea and diarrhea may occur.

Skin contact: Brief contact is not irritating. Prolonged contact, as with clothing wetted with material, may cause defatting of skin or irritation, seen as local redness with possible mild discomfort.

Eye contact: May cause minimal irritation, experienced as a temporary discomfort.

Carcinogenic: IARC – No, NTP – No, OSHA – No, ACGIH – No.
Pre-existing medical conditions aggravated by exposure-skin disorders.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Petroleum Distillate	64742-65-0	>70
Petroleum Distillate	64742-62-7	<30

***Note:** The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: If irritation, headache or drowsiness occurs, remove to fresh air.

Skin contact: Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists. Wash clothing before reuse.

Ingestion: If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

Eye contact: Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists.

Section 5. FIREFIGHTING MEASURES

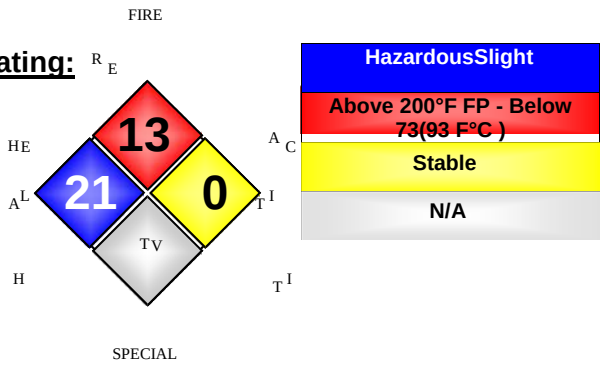
Suitable Media: Water spray, dry chemical foam or carbon dioxide. **Extinguishing**

Specific Hazards: None known

Combustion Products: Not available

Fire Fighting Methods: Wear self-contained breathing apparatus. Wear structural firefighter protective clothing.

	NFPA rating:	HMIS rating:
Health:	**1**	**1**
Flammability:	**1**	**1**
Instability/reactivity:	**0**	**0**
Other:	**N/A**	**B (PPE)**



Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Shut off source of leak if safe to do so.
Methods for Containment and Clean up	Advise EPA: State agency if required. Absorb on inert material. Shovel, sweep or vacuum spill.

Section 7. HANDLING AND STORAGE

Handling:	Wash thoroughly after handling.
Storage:	Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits: No components found

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [C]

Engineering measures: Mechanical ventilation recommended.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: Concentration in air determines protection required. Use only NIOSH certified respiratory protection. Respiratory protection usually not needed unless product is heated or misted.

Skin and body protection: Protective gloves recommended when prolonged skin contact cannot be avoided. The following glove materials are acceptable: Polyethylene, Neoprene, Nitrile, and Viton. If contact is unavoidable, wear chemical resistant clothing. The following materials are acceptable as protective clothing materials: Polyethylene, Neoprene, Nitrile, Viton, and Polyurethane. Launder soiled clothes.

Eye protection: Splash proof chemical goggles recommended to protect against splash of product.

Hygiene measures: Wash with soap and water before meal times and at the end of each work shift.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear/Amber Liquid
Physical state (solid/liquid/gas):	Liquid
Substance type (pure/mixture):	Mixture
Color:	Clear Amber
Odor:	Bland
Molecular weight:	Not Available
pH:	Not Available
Boiling point/range (5-95%):	Not Available
Melting point/range:	Not Available
Decomposition temperature:	Not Available
Specific gravity:	0.875 @ 60°F (15°C) typical
Vapor density:	Not Available
Vapor pressure:	Not Available
Evaporation rate (Butyl acetate= 1):	Not Available
Flash point:	395°F (202°C) COC
Water solubility:	Negligible
VOC Content	Not Available
Auto-ignition temperature:	Not Available
Flammable limits in air — lower (%):	Not Determined
Flammable limits in air — upper (%):	Not Determined

Section 10. STABILITY AND REACTIVITY

Reactivity:	No data available
Stability:	Stable under normal conditions
Possibly hazardous reactions:	No data available
Conditions to avoid:	Periods of exposure to high temperatures should be minimized
Incompatible Materials:	Strong oxidizers
Hazardous decomposition products:	Carbon oxides and asphyxiates
Polymerization:	Will not occur

Section 11. TOXICOLOGICAL INFORMATION

This product contains no components present at concentrations equal to or greater than 0.1% listed by IARC, OSHA, NTP or ACGIH as a carcinogen.

Product information:

Name	CAS No.	Inhalation:	Dermal:	Oral:

Section 11. ECOLOGICAL INFORMATION

Ecotoxicity effects: No data available **Persistence and Degradability:** No data available

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: Follow Federal, State and Local regulations. Not a RCRA hazardous waste if uncontaminated. If "used" RCRA criteria (ignitability, reactivity, corrosivity, toxicity characteristics) must be determined. Do not flush to drain/storm sewer. Contract to authorized disposal service.

Section 14. TRANSPORT INFORMATION

Not regulated by the Department of Transportation as a hazardous material

Section 15. REGULATORY INFORMATION

U.S. Federal regulatory information

None

Section 16. OTHER INFORMATION

The information and recommendations contained herein are based upon tests, data, and information resources believed to be reliable. However, the J.C. Whitlam Manufacturing Company, Inc., and its related operations or divisions (Whitlam) do not guarantee the accuracy or completeness, nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of goods, the merchantability of the goods or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage may be required. Whitlam assumes no responsibility for results obtained or for

Safety Data Sheet

1 - Identification

Product Name: WD-40 Multi-Use Product Aerosol ***NOT FOR SALE IN CALIFORNIA*** **Product Use: Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion** **Restrictions on Use: None identified** **SDS Date Of Preparation: 07/20/2014**	**Manufacturer: WD-40 Company** **Address: 1061 Cudahy Place (92110)** **P.O. Box 80607** **San Diego, California, USA** **92138 –0607** **Telephone:** **Emergency only: 1-888-324-7596 (PROSAR)** **Information: 1-888-324-7596** **Chemical Spills: 1-800-424-9300 (Chemtrec)** **1-703-527-3887 (International Calls)**

2 – Hazards Identification

Hazcom 2012/GHS Classification:
Flammable Aerosol Category 1
Gas Under Pressure: Compressed Gas
Aspiration Toxicity Category 1

Note: This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission regulations which take precedence over OSHA Hazard Communication labeling. The actual container label will not include the label elements below. The labeling below applies to industrial/professional products.

Label Elements:

DANGER!
Extremely Flammable Aerosol.
Contains gas under pressure; may explode if heated.
May be fatal if swallowed and enters airways.

Prevention
Keep away from heat, sparks, open flames, hot surfaces – No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.

Response
IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage
Store locked up.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place.

Disposal

Dispose of contents and container in accordance with local and national regulations.

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	US Hazcom 2012/ GHS Classification
Aliphatic Hydrocarbon	64742-47-8	45-50	Flammable Liquid Category 3
			Aspiration Toxicity Category 1
Petroleum Base Oil	64742-56-9 64742-65-0 64742-53-6 64742-54-7 64742-71-8	<25	Not Hazardous
LVP Aliphatic Hydrocarbon	64742-47-8	12-18	Aspiration Toxicity Category 1
Carbon Dioxide	124-38-9	2-3	Simple Asphyxiant Gas Under Pressure, Compressed Gas
Non-Hazardous Ingredients	Mixture	<10	Not Hazardous

Note: The exact percentages are a trade secret.

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.

Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.
Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.
Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.
Signs and Symptoms of Exposure: May cause eye and respiratory irritation. Inhalation may cause coughing, headache and dizziness. Skin contact may cause drying of the skin.
Indication of Immediate Medical Attention/Special Treatment Needed: Immediate medical attention is needed for ingestion.

5 – Fire Fighting Measures

Suitable (and unsuitable) Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.
Specific Hazards Arising from the Chemical: Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Combustion will produce oxides of carbon and hydrocarbons.
Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.
Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.
Conditions for Safe Storage: Store in a cool, well-ventilated area, away from incompatible materials Do not store above 120□F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol. Store away from oxidizers.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m3 TWA, 10 mg/m3 STEL ACGIH TLV 5 mg/m3 TWA OSHA PEL
LVP Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA (OSHA/ACGIH), 30,000 ppm STEL (ACGIH)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product Appropriate
Engineering Controls: Use in a well-ventilated area.
Personal Protection:
Eye Protection: Avoid eye contact. Always spray away from your face.
Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.
Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended
Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.
Personal Protection:
Eye Protection: Safety goggles recommended where eye contact is possible.
Skin Protection: Wear chemical resistant gloves.
Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.
Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Appearance:	Light amber liquid	Flammable Limits: (Solvent Portion)	LEL: 0.6% UEL: 8%
Odor:	Mild petroleum odor	Vapor Pressure:	95-115 PSI @ 70□F
Odor Threshold:	Not established	Vapor Density:	Greater than 1 (air=1)
pH:	Not Applicable	Relative Density:	0.8 – 0.82 @ 60□F
Melting/Freezing Point	Not established	Solubilities:	Insoluble in water
Boiling Point/Range:	361 - 369□F (183 - 187°C)	Partition Coefficient; noctanol/water:	Not established
Flash Point:	122□F (49°C) Tag Closed Cup (concentrate)	Autoignition Temperature:	Not established
Evaporation Rate:	Not established	Decomposition Temperature:	Not established
Flammability (solid, gas)	Flammable Aerosol	Viscosity:	2.79-2.96 cSt @ 100□F
VOC:	412 grams/liter (49.5%)	Pour Point:	-63□C (-81.4□F) ASTM D-97

10 – Stability and Reactivity

Reactivity: Not reactive under normal conditions
Chemical Stability: Stable

Possibility of Hazardous Reactions: May react with strong oxidizers generating heat.
Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.
Incompatible Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Symptoms of Overexposure:
Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.
Eye Contact: Contact may be irritating to eyes. May cause redness and tearing.
Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
Chronic Effects: None expected.
Carcinogen Status: None of the components are listed as a carcinogen or suspect carcinogen by IARC, NTP, ACGIH or OSHA.
Reproductive Toxicity: None of the components is considered a reproductive hazard.

Numerical Measures of Toxicity:
The oral toxicity of this product is estimated to be greater than 5,000 mg/kg and the dermal toxicity greater than 2,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

12 – Ecological Information

Ecotoxicity: No specific aquatic toxicity data is currently available, however components of this product are not expected to be harmful to aquatic organisms
Persistence and Degradability: Component are readily biodegradable.
Bioaccumulative Potential: Bioaccumulation is not expected based on an assessment of the ingredients.
Mobility in Soil: No data available
Other Adverse Effects: None known

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Do not puncture or incinerate containers, even empty. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information_

DOT Surface Shipping Description:
UN1950, Aerosols, 2.1 Ltd. Qty (Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)
IMDG Shipping Description: Un1950, Aerosols, 2.1, LTD QTY
ICAO Shipping Description: UN1950, Aerosols, flammable, 2.1 NOTE: WD-40 does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

U.S. Federal Regulations:
CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many

states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
SARA TITLE III:
Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure
Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None
Section 302 Extremely Hazardous Substances (TPQ): None
EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.
VOC Regulations: This product complies with the consumer product VOC limits of the US EPA and states adopting the OTC VOC rules but does not comply with CARB.
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product does not contain chemicals regulated under California Proposition 65.
Canadian Environmental Protection Act: One of the components is listed on the NDSL. All of the other ingredients are listed on the Canadian Domestic Substances List or exempt from notification.
Canadian WHMIS Classification: Class A (Compressed gas), Class B-5 (Flammable Aerosol)
This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16 – Other Information:

HMIS Hazard Rating:
Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Reactivity – 0 (minimal hazard)

Revision Date: July 20, 2014 Supersedes: May 23, 2014

Revision Summary: Convert to Hazcom 2012. Changes in all sections.

Prepared by: Industrial Health & Safety Consultants, Inc. Shelton, CT, USA

APPROVED By: I. Kowalski Regulatory Affairs Dept.

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date 09.10.2013 **Version number 7** **Revision: 09.10.2013**

*

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

· **Product identifier**

· **Trade name:** **Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion**

· **Relevant identified uses of the substance or mixture and uses advised against**

· **Article category** AC3 Electrical batteries and accumulators

· **Application of the substance / the preparation** Rechargeable Lithium Ion battery for power tools

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:** Hilti (Gt. Britain) Ltd.
1 Trafford Wharf Road
Trafford Park
GB-M17 1BY Manchester
Phone: 0800 886 100 (Freephone)
Fax: 0800 886 200 (Freefax) Email:
gbsales@hilti.com

· **Informing department:**
anchor.hse@hilti.com
see section 16

· **Emergency telephone number:**
Schweizerisches Toxikologisches Informationszentrum - 24 h Service Tel.:
0041 / 44 251 51 51 (international)
.
Hilti (Gt. Britain) Ltd
Phone: 0800 886 100 (Freephone)
Fax: 0800 886 200 (Freefax)

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date

Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

09.10.2013

2 Hazards identification

· **Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

In accordance with article 3 (3) of REACH, this / these item(s) are articles.
An article is not subject to the mandatory marking regulations applicable to dangerous substances.
The product is not classified as hazardous to health or environment according to the CLP regulation.

· **Additional information:**

For the battery chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use there is no physical danger of ignition or explosion and chemical danger of hazardous materials leakage.
It may cause heat generation or electrolite leakage if battery terminals contact with other metals. Elektrolyte is flammable.
In case of electrolyte leakage move the battery from fire immediately.

However if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery case will be breaked at the extreme, hazardous materials may be released.

Moreover, if heated strongly by a surrounding fire, acrid gas may be emitted.

· **Label elements**

· **Labelling according to Regulation (EC) No 1272/2008** Void

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

*

(Contd. on page 2)

(Contd. of page 1)

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

Printing date 09.10.2013 **Version number 7** **Revision: 09.10.2013** *

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:**

Lithium Ion rechercheable battery pack:

Name/Type	Lithiumequivalent (g)	Energy content (Wh)
B 7 / 1.5 Li-Ion	0,9	10,8
B 12 / 2.6 Li-Ion	2,34	28,1
B 14 / 1.6 Li-Ion	1,92	23
B 14 / 3.3 Li-Ion	3,84	46
B 18 / 1.6 Li-Ion	2,88	35
B 18 / 2.6 Li-Ion	4,68	56,16
B 18 / 3.3 Li-Ion	5,94	71,3
B 22 / 1.6 Li-Ion	2,88	35
B 22 / 2.6 Li-Ion	4,68	56,16
B 22 / 3.3 Li-Ion	5,94	71,3
B 36 / 2.6 Li-Ion	7,8	94
B 36 / 2.4 Li-Ion	7,2	86,4 B
144 / 2.6 Li-Ion	3,12	37,44

· **Dangerous components:**

This product contains a positive electrode (Lithium cobalt oxide), a negative electrode (graphite) and electrolyte (ethylene carbonate, diethyl carbonate and lithium hexafluorophosphate). The physical form of the product, however, precludes exposure to workers under normal conditions of use.

CAS: 1307-96-6 EINECS: 215-154-6	cobalt oxide Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Skin Sens. 1, H317	<30%
CAS: 1313-13-9 EINECS: 215-202-6	manganese dioxide Acute Tox. 4, H302; Acute Tox. 4, H332	<30%
CAS: 1313-99-1 EINECS: 215-215-7	nickel monoxide Carc. 1A, H350i; STOT RE 1, H372; Skin Sens. 1, H317; Aquatic Chronic 4, H413	<30%
CAS: 7440-44-0 EINECS: 231-153-3	carbon Flam. Liq. 3, H226; Self-heat. 1, H251	<30%
	Electrolyte; main ingredients: Lithium hexaflourophospate, organic carbonates Skin Corr. 1A, H314	<20%
CAS: 24937-79-9	Polyvinylidene fluoride (PVdF)	<10%
CAS: 7429-90-5	Aluminium foil	2-10%
CAS: 7440-50-8	Copper foil	2-10%

4 First aid measures

· **Description of first aid measures**

· **General information**

This product contains an organic electrolyte. If the electrolyte is leaking out of the battery pack, the following measures have to be taken.

· **After inhalation**

Take affected persons into the open air and position comfortably Supply fresh air or oxygen; call for doctor.

In case of unconsciousness bring patient into stable side position for transport.

· **After skin contact** Instantly wash with water and soap and rinse thoroughly. If skin irritation persist, call a physician. · **After eye contact** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. · **After swallowing** Seek immediate medical advice.

· **Information for doctor**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

(Contd. of page 2) · **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date

Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

09.10.2013 Version number 7 Revision: 09.10.2013

5 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents**
CO2, extinguishing powder or water jet. Fight larger fires with water jet.
Foam
· **For safety reasons unsuitable extinguishing agents** Water with full jet.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters** · **Protective equipment:**
In the event of fire, wear self contained breathing apparatus Wear full protective suit.
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.
Keep away from ignition sources
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Keep people at a distance and stay on the windward side.
· **Environmental precautions:** Do not allow to enter the ground/soil.
· **Methods and material for containment and cleaning up:**
Absorb liquid components with liquid-binding material. Collect mechanically.
· **Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

7 Handling and storage

· **Handling**
· **Precautions for safe handling** Do not soak in water or seawater.
Do not expose to strong oxidizers.
Do not give a strong mechanical shock or fling.
Never disassemble, modify or deform.
Do not connect the positive terminal to the negative terminal with electrically conductive material.
Use only the chargers / electric tools specified by Hilti to charge or discharge the battery. No special precautions necessary if used correctly.
· **Information about protection against explosions and fires:**
Do not throw into fire or expose to high temperatures (>85 °C).
Do not connect the positive terminal to the negative terminal with electrically conductive material.

· **Conditions for safe storage, including any incompatibilities**
· **Storage**
· **Requirements to be met by storerooms and containers:**
Avoid direct sunlight, high temperature, high humidity.
Store in a cool place (temperature: -20 °C ~ 35 °C, humidity: 45 - 85%) ·
Information about storage in one common storage facility:
Do not store together with oxidizing and acidic materials.
Store away from water.
Do not store together with electrically conductive materials.

(Contd. on page 4)

(Contd. of page 3) · **Further information about storage conditions:**

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

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The accu-pack should be stored at 30 to 50% of the charging capacity.
Avoid storing in places where it is exposed to static electricity.
Protect from heat and direct sunlight.
Protect from humidity and keep away from water.

· **Storage class** 11
· **Specific end use(s)** No further relevant information available.

Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters
Components with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Additional information: The lists that were valid during the compilation were used as basis.

Exposure controls
Personal protective equipment ·
reathing equipment: Not required.
Protection of hands: Not required.
Material of gloves Not required.
Penetration time of glove material Not required.
Eye protection: Not required. ·
ody protection:

Protective work clothing.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information** · **Appearance:**

Form:	plastic case
Colour:	Black / Red
· **Odour:**	Odourless
· **Odour threshold:**	Not determined

· **pH-value:**	Not applicable

· **Change in condition**

Melting point/Melting range:	Not applicable
Boiling point/Boiling range:	Not applicable

· **Flash point:**	Not applicable
· **Inflammability (solid, gaseous)**	Not applicable
· **Ignition temperature:**	Not applicable
· **Decomposition temperature:**	Not applicable
· **Self-inflammability:**	Product is not selfigniting.
· **Danger of explosion:**	Risk of explosion by shock, friction, fire or other sources of ignition.

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date

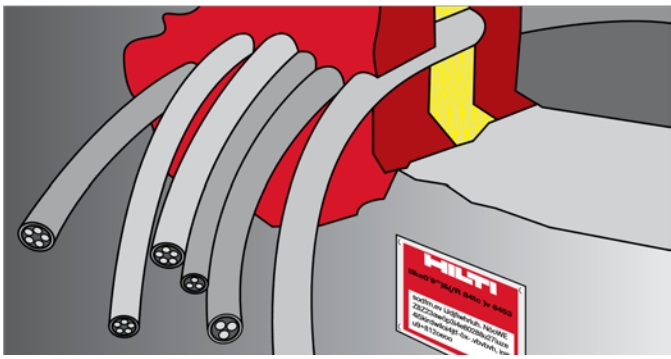
Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

09.10.2013 Version number 7 Revision: 09.10.2013

14 Transport information

· **UN-Number** · **ADR, ADN, IMDG, IATA**	Void
· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	Void
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	Void
· **Packing group** · **ADR, IMDG, IATA**	Void
· **Environmental hazards:** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications. Lithium-ion batteries are tested in accordance with: UN manual of Tests and Criteria, Part III, subsection 38.3
· **ADR** · **Remarks:**	Lithium ion batteries offered for carriage are not subject to other provisions of ADR/RID/GGVS/E. They meet the requirements of special provision SP 188.
· **IMDG** · **Remarks:**	Lithium ion batteries offered for carriage are not subject to other provisions of IMDG/GGVSee. They meet the requirements of special provision SP 188.
· **IATA** · **Remarks:**	Lithium ion batteries offered for transport are not subject to other additional requirements of these regulations. They meet the requirements of Packing Instruction 965/II (2 batteries) and 965/IB (>2 batteries).
· **UN "Model Regulation":**	-

FS-ONE High



Performance Intumescent Firestop Sealant

Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

Product features

- Smoke, gas and water resistant after material has cured
- Contains no halogen, solvents or asbestos
- High fire rating properties
- Water based, easy to clean
- Protects most typical firestop penetration applications
- Paintable
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes

HVAC penetrations

For use with

- Sealing around combustible pipe penetrations in fire rated construction
- Sealing around non-combustible penetrations in fire rated construction

Approvals

- California State Fire Marshal - No. 4485-1200:108
- City of New York - MEA 326-96-M Vol. IV

Tested in accordance with

- UL 1479
- ASTM E 814
- ASTM E 84

*At 73°F (23°C) and 50% relative humidity

CLASSIFIED c UL us
FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
66Y7

FM
$33529('

FBC
SYSTEM COMPATIBLE

Tech
Chem
Color
Appli
Skin f
Curin
Avera C124
Move
Expar
Temp
Surfa 84-96
Soun (ASTM

Installation instructions for FS-ONE

Notice

4. Smoothing of firestop sealant: To complete the seal, tool immediately to give a smooth appearance.

- On materials where oil, plasticizers or solvents may bleed i.e. impregnated wood, oil based seals, green
- Concrete, masonry, drywall and wood floor assemblies
- Wall and floor assemblies rated up to 4 hours

Examples

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

Opening

1. Clean the opening. Surfaces to which FS-ONE will be applied should be cleaned of loose debris, dirt, oil, moisture, frost and wax. Structures supporting penetrating items must be installed in compliance with local building and electrical standards.

Application of firestop sealant

2. Install the prescribed backfilling material type and depth to obtain the desired rating (if required). Leave sufficient depth for applying FS-ONE.
3. Application of firestop sealant: Apply FS-ONE to the required depth in order to obtain the desired fire rating. Make sure FS-ONE contacts all surfaces to provide maximum adhesion. For application of FS-ONE use a standard caulking gun, foil pack gun, bulk loader and bulk gun. With FS-ONE buckets, Graco type sealant pumps may be used. (Contact pump manufacturer for proper selection).

Excess sealant, prior to curing, can be cleaned away from adjacent surfaces and tools with water.

5. Leave completed seal undisturbed for 48 hours.
6. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

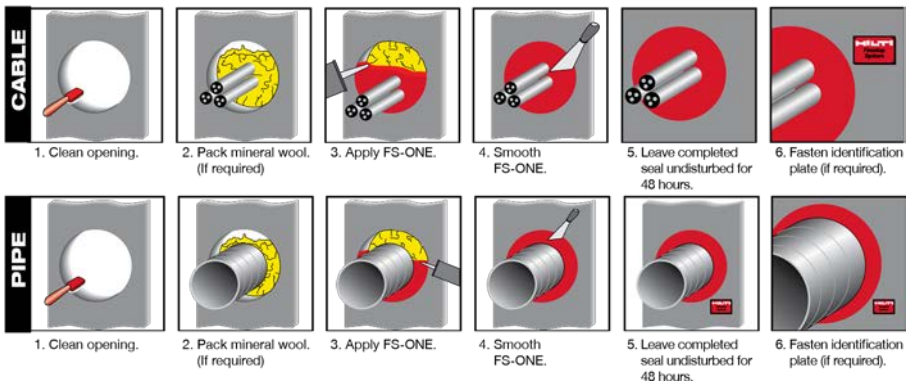
Not for use

• High movement expansion joints
• Underwater
or partially vulcanized rubber

- In any penetration other than those specifically described in this manual or the test reports

Storage

- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the packag



Hilti. Outperform. Outlast.

®

MATERIAL SAFETY DATA SHEET

Product name: **FS-ONE High Performance Intumescent Firestop Sealant**
Description: One-part acrylic-based sealant
Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m^3 (T)	10 mg/m^3 (T)	NE
Zinc borate	138265-88-0	NE	NE	NE
Ammonium polyphosphate	068333-79-9 014807-96-6	NE	NE	NE
Talc		20 mppcf	2 mg/m^3	NE
Expandable graphite	012777-87-6 000107-21-1	5 mg/m^3 (T)	2 mg/m^3 (T)	NE
Ethylene glycol		NE	C:100 mg/m^3 (A)	NE
Polybutene	009003-29-6	NE	NE	NE
Iron oxide	001309-37-1	10 mg/m^3	5 mg/m^3	NE
Glass filament	065997-17-3 014808-60-7	NE	5 mg/m^3 (T)	NE
Silicon dioxide		0.05 mg/m^3 (T)	0.1 mg/m^3 (T)	NE
Water	007732-18-5	NE	NE	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **C** = Ceiling. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **(T)** indicates “as total dust”. **(R)** indicates “as respirable fraction”. **(A)** indicates “as an aerosol”. **mppcf** = million particles per cubic foot.

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Odorless.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	23mbar @ 20C / 68F
Boiling Point:	Not applicable.	**VOC Content:**	75.0 g/L.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
Specific Gravity:	1.5	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Non-flammable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	ng media as appropriate for surrou fire.		
Special Fire Fighting Procedures:	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and oxi agents.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
Medical Conditions Aggravated by Exposure:	Eye and skin conditions.
Routes of Exposure:	Dermal.

Carcinogenicity: IARC classifies crystalline silica (quartz sand) as Group I based upon evidence among workers in industries where there has been long-term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. This product does not pose a dust hazard; therefore, this classification is not relevant. Based upon the nature and intended use of this product, it does not pose an increased cancer risk to workers.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Call a physician if symptoms occur.
Skin:	Immediately wipe off material and wash with soap and water. Material can adhere to the skin. If material has adhered to the skin, use an abrasive containing hand cleaner. If material does not come off, buff with a pumice stone.
Inhalation:	Move victim to fresh air if discomfort develops. Call a physician if symptoms persist.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a physician. If a large quantity was ingested, give 1 to 2 glasses of water to dilute. Never give anything by mouth to an unconscious person.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses should be worn in most industrial settings.
Skin Protection:	Avoid skin contact. Cloth gloves are suitable for hand protection.
Respiratory Protection:	None normally required. Where ventilation is inadequate to control vapors, use a NIOSHapproved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing	Store in a cool, dry area preferably between 40º and 77º F. Keep from freezing. Do not store in

Precautions: direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.

Spill Procedures: Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

REGULATORY INFORMATION

Hazard Communication: This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

HMIS Codes: Health 1, Flammability 0, Reactivity 0, PPE B **DOT Shipping**

Name: Not regulated. **IATA / ICAO Shipping Name:** Not regulated.

TSCA Inventory Status: Chemical components listed on TSCA inventory.

SARA Title III, Section 313: This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).

EPA Waste Code(s): Not regulated by EPA as a hazardous waste.

Waste Disposal Methods: Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf		(x6704)

Emergency # (Chem-Trec): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Certificate of Compliance

Certificate Number **20100512-R13240**
Report Reference **2010 May 12**
Issue Date **2010 May 12**

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.

54 S 122ND East AVe
Tulsa, OK 74146 USA

This is to certify that representative samples of Fill, Void or Cavity Materials
FS-ONE

Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05
Third Edition, revised March 1, 2010

Additional Information: FS-ONE Sealant for use in Joint Systems and FS-ONE for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

Only those products bearing the UL Classification Mark should be considered as being covered by UL's Classification and Follow-Up Service.

The UL Classification Mark includes: UL in a circle symbol: with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and, the product category name (product identity) as indicated in the appropriate UL Directory.

Look for the UL Classification Mark on the product

Issued by:
Mona Couloute
Mona Couloute
Underwriters Laboratories Inc.

Reviewed by:
Chris J. Johnson
Underwriters Laboratories Inc.

MATERIAL SAFETY DATA SHEET

Section 1 – Product & Company Identification

Product Name	:	RIDGID Dark Thread Cutting Oil
Product Catalog No.	:	41590, 70830, 41610, 41600
Company Name	:	Ridge Tool Company
Address	:	400 Clark Street
	:	Elyria, Ohio 44035-6001
Telephone	:	1-800-519-3456 (USA) (8:00 am – 5:00 pm EST, M-F)
Emergency Telephone	:	call 9-1-1 or local emergency number
Website	:	www.RIDGID.com
Issue Date	:	June 13, 2013

Section 2 – Hazards Identification

EMERGENCY OVERVIEW:

This product is a liquid that is insoluble in water. Direct eye contact may cause minor, short term irritation. Short term skin exposure is not expected to be irritating. Inhalation and ingestion are not anticipated routes of exposure during normal conditions of use.

POTENTIAL HEALTH EFFECTS AND SYMPTOMS FROM SHORT TERM / ACUTE EXPOSURE:

- Eye
  This product is not expected to cause eye irritation under normal conditions of use. Symptoms of slight eye irritation may result when direct contact occurs, or when exposed to high mist levels in poorly ventilated areas.

- Skin
  Short term skin contact is not expected to cause skin irritation. Prolonged or repeated direct exposure to the skin may result in symptoms of irritation and redness. In severe cases, prolonged or repeated contact may result in dermatitis accompanied by symptoms of irritation, itching, dryness, cracking and/or inflammation.

- Inhalation:
  This product has low volatility and so is not expected to cause respiratory tract irritation during normal conditions of use. Exposure to high mist levels in poorly ventilated areas may cause upper respiratory tract irritation and difficulty breathing.

Product Name ..... : RIDGID Dark Thread Cutting Oil

- Ingestion:
  Ingestion may cause slight stomach irritation and discomfort.
- Potential Chronic Health Effects
  No further data known.
- Medical Conditions Aggravated By Exposure:
  No further data known.
- Carcinogenicity:
  This product is not listed as a known or suspected carcinogen by IARC, OSHA or the NTP.

HMIS RATING:

Health	Flammability	Reactivity	PPE
1	1	0	X

Section 3 – Composition / Information On Ingredients

Components listed in this section may contribute to the potential hazards associated with exposure to the concentrate. The product may contain additional non-hazardous or trade secret components.

Component:	CAS #	% By Weight
Mineral Oil	64742-54-7	> 90
Sulfur Additive Package	Mixture	< 10

This product does not contain silicone.

Product Name ..... : RIDGID Dark Thread Cutting Oil

Section 4 – First Aid Measures

EYE CONTACT:

Upon direct eye contact, hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. If irritation is due to exposure to mist or vapors, remove the individual to fresh air. If irritation persists, flush the eyes with clean water until the irritation subsides. If symptoms persist, contact a physician.

SKIN CONTACT:

Remove product from the skin by washing with a mild soap and water. Contaminated clothing should be removed to prevent prolonged exposure. If symptoms of exposure persist, contact a physician.

INHALATION:

Inhalation is not an expected route of exposure. If respiratory irritation or distress occurs, remove the employee to fresh air. Contact a physician or other medical professional if irritation or distress persists.

INGESTION:

If small amounts are ingested, first aid measures are not likely to be necessary. If larger amounts are ingested or if symptoms of ingestion occur, dilute stomach contents with two glasses of water or milk. (NOTE: Do NOT give anything by mouth to an unconscious person.) Do not induce vomiting without medical supervision. If vomiting occurs spontaneously, keep airway clear. If symptoms of ingestion persist, seek medical attention.

Section 5 – Fire Fighting Measures

FIRE AND EXPLOSIVE PROPERTIES:

Flashpoint..... :	385°F Cleveland Open Cup
Flammability Limits..... :	LEL - N/A
	UEL - N/A

EXTINGUISH MEDIA:

In accordance with NFPA guidance, dry chemical, foam or CO2 fire extinguishers are all acceptable. Note that while water fog extinguishers are also acceptable, do NOT apply a direct stream of water onto burning product because it may cause spreading and increase fire intensity.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

No further data known.

FIRE-FIGHTING PROCEDURES AND EQUIPMENT:

Emergency responders in the danger area should wear bunker gear and self-contained breathing apparatus for fires beyond the incipient stage. See Section 8 of the MSDS for other PPE to be worn as conditions warrant.

Section 6 – Accidental Release Measures

PERSONAL PRECAUTIONS:

Use personal protection recommended in Section 8.

ENVIRONMENTAL:

This material is a water pollutant. Do not let spilled or leaking material enter waterways.

CLEAN-UP MEASURES:

Important: As with any spill or leak, before responding, ensure that you are familiar with the potential hazards and recommendations of the MSDS. Appropriate personal protective equipment must be worn.

If possible, safely contain the spill with dikes or other spill response equipment appropriate for petroleum or organic material releases. Take measures to prevent spreading of product. Note that while product will ignite, it will not readily burn. However, as a precaution, eliminate ignition sources. Prevent from entering sewers or waterways. Large volumes may be transferred to an appropriate container for proper disposal. Small volumes or residues may be soaked up with absorbents. Spill response materials should be collected for proper disposal.

Product Name ..... : RIDGID Dark Thread Cutting Oil

Section 7 – Handling And Storage

HANDLING:

As with any industrial chemical, handle the product in a manner that minimizes exposure to practicable levels. Prior to handling, consult Section 8 of this MSDS to evaluate personal protective equipment needs. Open containers slowly to relieve any pressure. Follow all other standard industrial hygiene practices.

Empty containers may contain product residue. All safety precautions taken when handling this product should also be taken when handling empty drums and containers. Keep containers closed when not in use.

Product residue in empty containers is combustible but will not readily burn. Note, however, that excessive heating or cutting of empty containers may create an ignition source sufficient to start a fire and, in extreme cases, cause an explosion.

STORAGE:

Protect product quality by storing indoors and away from extreme temperatures. Close all containers when not in use.

Section 8 – Exposure Controls / Personal Protection

EXPOSURE GUIDELINES:

Component		
Mineral Oil	ACGIH TLV: ACGIH STEL: OSHA PEL:	5 mg / m3 (as mist) 10 mg / m3 (as mist) 5 mg / m3 (as mist
Sulfur Additive Package	No information	

ENGINEERING CONTROLS:

Normal general ventilation is expected to be adequate. It is recommended that ventilation be designed in all instances to maintain airborne concentrations at lowest practicable levels. Ventilation should, at a minimum, prevent airborne concentrations from exceeding any exposure limits.

The user may wish to refer to 29 CFR 1910.1000(d) (2) and the ACGIH "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices" (Appendix C) for the determination of exposure limits of mixtures. An industrial hygienist or similar professional may be consulted to confirm that the calculated exposure limits apply.

PERSONAL PROTECTIVE EQUIPMENT:

Selection of personal protective equipment should be based upon the anticipated exposure and made in accordance with OSHA's Personal Protective Equipment Standard found in 29 CFR 1910 Subpart I. The following information may be used to assist in PPE selection.

- Eye Protection
  Wear eye protection appropriate to prevent eye exposure. Where splashing is not likely, chemical safety glasses with side shields are recommended. Where splashing may occur, chemical goggles or full face shield is recommended.

- Skin Protection
  Gloves are not normally needed during normal conditions of use. If health effects are experienced, oil or chemical resistant gloves such as butyl or nitrile are recommended. Where splashing or soaking is likely, wear oil or chemical resistant clothing to prevent exposure.

- Respiratory Protection
  A respirator may be worn to reduce exposure to vapors, dust or mist. Select a NIOSH/MSHA approved respirator appropriate for the type and physical character of the airborne material. A self-contained breathing apparatus is recommended in all situations where airborne contaminant concentration has not been confirmed to be below safe levels. Respirator use should comply with the OSHA Respirator Protection Standard found in 29 CFR 1910.134.

- General Hygiene Considerations
  Wash thoroughly after handling.

Product Name ..... : RIDGID Dark Thread Cutting Oil

Section 9 – Physical And Chemical Properties

Physical Appearance:..... : Black
Odor. ..... : Mild Petroleum
Physical State ..... : Liquid
Water Solubility ..... : Insoluble
Specific Gravity ..... : .878
VOC ……: 2.5%

Section 10 – Stability And Reactivity

STABILITY:

This product is stable.

CONDITIONS TO AVOID:

Avoid contact with incompatible materials and exposure to extreme temperatures.

INCOMPATIBLE MATERIALS:

This product is incompatible with strong oxidizing agents.

DECOMPOSITION PRODUCTS MAY INCLUDE:

Thermal decomposition products are dependent on combustion conditions. A complex mixture of airborne solid, liquid, particulates and gasses may evolve when the material burns. Combustion by-products may include:

oxides of carbon

oxides of sulfur

incompletely burned hydrocarbons as fumes and smoke

POSSIBILITY OF HAZARDOUS REACTIONS:

This product is not expected to polymerize

Product Name ..... : RIDGID Dark Thread Cutting Oil

Section 11 – Toxicological Information

ACUTE:

Oral LD_{50}: Not determined
Inhalation LC_{50}: Not determined

CHRONIC: No further toxicological data known.

SENSITIZATION: No further toxicological data known.

REPRODUCTIVE EFFECTS: No further toxicological data known.

TERATOGENIC EFFECTS: No further toxicological data known.

MUTAGENICITY: No further toxicological data known.

SYNERGISTIC MATERIALS: No further toxicological data known.

CARCINOGENICITY: This product is not listed as a known or suspected carcinogen by IARC, OSHA or the NTP.

Section 12 – Ecological Information

ECOTOXICOLOGICAL INFORMATION:

This product has not been evaluated for ecotoxicity. As with any industrial chemical, exposure to the environment should be prevented and minimized wherever possible.

ENVIRONMENTAL FATE:

The degree of biodegradability and persistence of this product has not been determined.

VOC CONTENT:

2.5%

Product Name ..... : RIDGID Dark Thread Cutting Oil

Section 13 – Disposal Consideration

WASTE DISPOSAL:

Ensure that collection, transport, treatment and disposal of waste product and containers complies with all applicable laws and regulations. Note that use, mixture, processing or contamination of the product may cause the material to be classified as a hazardous waste. It is the responsibility of the product user or owner to determine at the time of disposal whether the product is regulated as a hazardous waste.

Section 14 – Transportation Information

U.S. DOT HAZARDOUS MATERIAL INFORMATION:

Not DOT regulated.

CANADA TRANSPORT OF DANGEROUS GOODS:

This material is not TDG regulated.

Section 15 – Regulatory Information

FEDERAL REGULATIONS:

SARA 313:

This product contains NONE of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CLEAN WATER ACT:

This product contains mineral oil and is subject to regulation by Section 311 of the Clean Water Act and the Oil Pollution Act. Releases of the product into or leading to surface waters must be reported to the National Response Center at 1-800-424-8802.

CERCLA REPORTABLE QUANTITY:

Any components listed below have been assigned a reportable quantity (RQ) by the Federal EPA. Releases of the product into the environment that exceed the RQ for a particular component must be reported to the National Response Center at 1-800-424-8802.

None to report

TOXIC SUBSTANCE CONTROL ACT:

The components of this product are listed on the TSCA Inventory.

OZONE DEPLETING SUBSTANCES:

This product contains no ozone depleting substances as defined by the Clean Air Act.

HAZARDOUS AIR POLLUTANTS:

Any components listed below are defined by the Federal EPA as hazardous air pollutants:

None to report

STATE REGULATIONS

This product contains mineral oil, and as used, may be regulated by state used oil regulations. Check with the appropriate state agency to determine whether such a regulation exists.

CANADA

WHMIS Classification: Not controlled under WHMIS

DSL:

The components of this product are listed on DSL Inventory.

Product Name ..... : RIDGID Dark Thread Cutting Oil

Section 16 – Other Information

Prepared by:. . . . . Ridge Tool Company

Issue Date: . . . . . June 13, 2013
Last Revision Date: . . . . . October 12, 2009

RIDGE TOOL BELIEVES THE STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE RELIABLE BUT THEY ARE GIVEN WITHOUT WARRANTY OR GUARANTEE OF ANY KIND, EXPRESSED OR IMPLIED, AND WE ASSUME NO RESPONSIBILITY FOR ANY LOSS, DAMAGE OR EXPENSE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THEIR USE.

Safety Data Sheet

SDS ID: Stock Code WL
Revision date: April 9, 2015

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **Wadco® Light Cutting and Threading Oil**
Synonyms: Not Available
Chemical family: Not Available
Producer: J.C. Whitlam Manufacturing Company
200 West Walnut Street
P.O. Box 380
Wadsworth, Ohio 44282-0380
www.jcwhitlam.com

Telephone: **330-334-2524 Available during normal business hours**

Emergency: **330-334-2524 Available during normal business hours**

Section 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Not expected to cause a severe emergency hazard.

Inhalation: Vapors or mist in high concentrations, as generated from spraying or heating in an enclosed space my cause minimal irritation.

Ingestion: If more than several mouthfuls are swallowed, abdominal discomfort, nausea and diarrhea may occur.

Skin contact: Brief contact is not irritating. Prolonged contact, as with clothing wetted with material, may cause defatting of skin or irritation, seen as local redness with possible mild discomfort.

Eye contact: May cause minimal irritation, experienced as a temporary discomfort.

Carcinogenic: IARC – No, NTP – No, OSHA – No, ACGIH – No.
Pre-existing medical conditions aggravated by exposure-skin disorders.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Material information:

Name	CAS No.	Weight %
Petroleum Distillate	64742-65-0	>70
Petroleum Distillate	64742-62-7	<30

***Note:** The above weight percentages are represented in ranges as estimates. Due to variation among production batches, component percentages may vary.*

Section 4. FIRST AID MEASURES

Inhalation: If irritation, headache or drowsiness occurs, remove to fresh air.

Skin contact: Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists. Wash clothing before reuse.

Ingestion: If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

Eye contact: Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists.

Section 5. FIREFIGHTING MEASURES

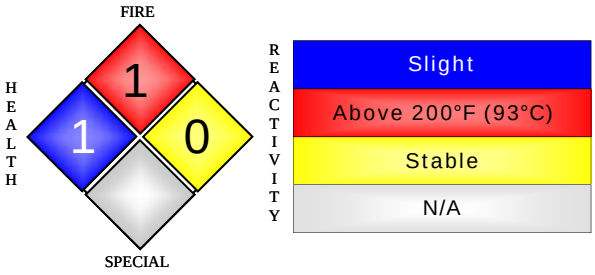
Suitable Extinguishing Media: Water spray, dry chemical foam or carbon dioxide.

Specific Hazards: None known

Combustion Products: Not available

Fire Fighting Methods: Wear self-contained breathing apparatus. Wear structural firefighter protective clothing.

	NFPA rating:	HMIS rating:
Health:	**1**	**1**
Flammability:	**1**	**1**
Instability/reactivity:	**0**	**0**
Other:	**N/A**	**B (PPE)**



Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Shut off source of leak if safe to do so.
Methods for Containment and Clean up	Advise EPA: State agency if required. Absorb on inert material. Shovel, sweep or vacuum spill.

Section 7. HANDLING AND STORAGE

Handling:	Wash thoroughly after handling.
Storage:	Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits: No components found

Name	CAS No.	ACGIH® TLV® Exposure Limits:	Federal OSHA PELs	OSHA PELs 1989 [C]

Engineering measures: Mechanical ventilation recommended.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: Concentration in air determines protection required. Use only NIOSH certified respiratory protection. Respiratory protection usually not needed unless product is heated or misted.

Skin and body protection: Protective gloves recommended when prolonged skin contact cannot be avoided. The following glove materials are acceptable: Polyethylene, Neoprene, Nitrile, and Viton. If contact is unavoidable, wear chemical resistant clothing. The following materials are acceptable as protective clothing materials: Polyethylene, Neoprene, Nitrile, Viton, and Polyurethane. Launder soiled clothes.

Eye protection: Splash proof chemical goggles recommended to protect against splash of product.

Hygiene measures: Wash with soap and water before meal times and at the end of each work shift.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear/Amber Liquid
Physical state (solid/liquid/gas):	Liquid
Substance type (pure/mixture):	Mixture
Color:	Clear Amber
Odor:	Bland
Molecular weight:	Not Available
pH:	Not Available
Boiling point/range (5-95%):	Not Available
Melting point/range:	Not Available
Decomposition temperature:	Not Available
Specific gravity:	0.875 @ 60°F (15°C) typical
Vapor density:	Not Available
Vapor pressure:	Not Available
Evaporation rate (Butyl acetate= 1):	Not Available
Flash point:	395°F (202°C) COC
Water solubility:	Negligible
VOC Content	Not Available
Auto-ignition temperature:	Not Available
Flammable limits in air — lower (%):	Not Determined
Flammable limits in air — upper (%):	Not Determined

Section 10. STABILITY AND REACTIVITY

Reactivity: No data available

Stability: Stable under normal conditions

Possibly hazardous reactions: No data available

Conditions to avoid: Periods of exposure to high temperatures should be minimized

Incompatible Materials: Strong oxidizers

Hazardous decomposition products: Carbon oxides and asphyxiates

Polymerization: Will not occur

Section 11. TOXICOLOGICAL INFORMATION

This product contains no components present at concentrations equal to or greater than 0.1% listed by IARC, OSHA, NTP or ACGIH as a carcinogen.

Product information:

Name	CAS No.	Inhalation:	Dermal:	Oral:

Section 11. ECOLOGICAL INFORMATION

Ecotoxicity effects: No data available

Persistence and Degradability: No data available

Section 13. DISPOSAL CONSIDERATIONS

Cleanup considerations: Follow Federal, State and Local regulations. Not a RCRA hazardous waste if uncontaminated. If "used" RCRA criteria (ignitability, reactivity, corrosivity, toxicity characteristics) must be determined. Do not flush to drain/storm sewer. Contract to authorized disposal service.

Section 14. TRANSPORT INFORMATION

Not regulated by the Department of Transportation as a hazardous material

Section 15. REGULATORY INFORMATION

U.S. Federal regulatory information

None

SAFETY DATA SHEET

Section 1 – Product & Company Identification

Product Name	:	RIDGID Nu-Clear Thread Cutting Oil
Product Catalog No.	:	41565, 70835, 41575, 41585, 42513
Recommended Use	:	Thread Cutting
Company Name	:	Ridge Tool Company
Address	:	400 Clark Street
	:	Elyria, Ohio 44035-6001
Telephone	:	1-800-519-3456 (USA) (8:00 am – 5:00 pm EST, M-F)
Emergency Telephone	:	call 9-1-1 or local emergency number
Website	:	www.RIDGID.com
Issue Date	:	May 29, 2015

Section 2 – Hazards Identification

This product is classified as not hazardous per US OSHA 29CFR 1910.1200 (HazCom 2012) and Canada's Hazardous Products Regulations (WHMIS 2015).

GHS Label Elements: Not applicable

Section 3 – Composition / Information On Ingredients

Component:	CAS #	% By Weight
Mineral Oil	Confidential	40-75%
Vegetable Oil	Confidential	1-5%

This product does not contain silicone or chlorinated additives.

Specific chemical identities and/or exact percentages have been withheld as trade secrets.

Section 4 – First Aid Measures

INGESTION:

Rinse mouth thoroughly. Call a Poison Center or doctor if you feel unwell. Do NOT induce vomiting.

INHALATION:

Move to fresh air. Call a Poison Center or doctor if you feel unwell.

Product Name ..... : RIDGID Nu-Clear Thread Cutting Oil

SKIN CONTACT:

Remove contaminated/saturated clothing and shoes. Wash contact areas with soap and water. If skin irritation occurs: Get medical advice/attention.

EYE CONTACT:

Flush thoroughly with water. If irritation occurs, get medical assistance. Continue to rinse for at least 15 minutes.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED

Symptoms:

No data available.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Treatment:

Get medical attention as appropriate or if symptoms persist

Section 5 – Fire Fighting Measures

GENERAL FIRE HAZARDS:

No unusual fire or explosion hazards noted.

SUITABLE (AND UNSUITABLE) EXTINGUISHING MEDIA

Suitable extinguishing media:

No data available.

Unsuitable extinguishing media:

Do not use water jet as an extinguisher, as this will spread the fire.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:

Heat may cause the containers to pressurize and possibly rupture. During fire, gases hazardous to health may be formed.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Special firefighting procedures:

No data available.

Special protective equipment for fire-fighters:

Firefighters must use standard protective equipment appropriate for Industrial fires.

Product Name ..... : RIDGID Nu-Clear Thread Cutting Oil

Section 6 – Accidental Release Measures

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

See Section 8 of the SDS for Personal Protective Equipment. Do not handle damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. Ensure adequate ventilation.

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.

ENVIRONMENTAL PRECAUTIONS:

Avoid release to the environment. Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so and protect against releases into the environment. Remediate as appropriate.

Section 7 – Handling And Storage

PRECAUTIONS FOR SAFE HANDLING:

Observe good industrial hygiene practices. Wear appropriate personal protective equipment. Do not expose to intense heat as product may expand and pressurize container.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Store in original tightly closed container. Avoid contact with oxidizing agents. Store away from incompatible materials.

SHELF LIFE:

720 days

Product Name ..... : RIDGID Nu-Clear Thread Cutting Oil

Section 8 – Exposure Controls / Personal Protection

EXPOSURE LIMITS:

Chemical name	type	Exposure Limit Values	Source
Mineral oil - Mist.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Vegetable oil - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Vegetable oil - Respirable fraction.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

PROTECTIVE MEASURES:

Use personal protective equipment as required.

RESPIRATORY PROTECTION:

In case of inadequate ventilation use suitable respirator. Seek advice from supervisor on the company's respiratory protection standards.

EYE PROTECTION:

Wear safety glasses with side shields (or goggles).

SKIN AND BODY PROTECTION:

Wear protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

HYGIENE MEASURES:

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Contaminated work clothing should not be allowed out of the workplace. Discard contaminated footwear that cannot be cleaned. Avoid contact with skin, eyes, and clothing.

Product Name ..... : RIDGID Nu-Clear Thread Cutting Oil

Section 9 – Physical And Chemical Properties

Appearance	
Physical State	Liquid
Form	No data available
Color	Yellow
Odor	Mild petroleum
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	196 ^{o}C (385 ^{o}F)
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
Relative density	0.878
Solubility(ies)	
Solubility in water	Insoluble
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	43 mm^2/s (40 ^{o}C, measured)
VOC	9.4 g/l

Product Name ..... : RIDGID Nu-Clear Thread Cutting Oil

Section 10 – Stability And Reactivity

REACTIVITY:
Not reactive during normal use.

CHEMICAL STABILITY:
No data available.

POSSIBILITY OF HAZARDOUS REACTIONS:
None under normal conditions.

CONDITIONS TO AVOID:
Avoid heat or contamination.

INCOMPATIBLE MATERIALS:
No data available.

HAZARDOUS DECOMPOSITION PRODUCTS:
Contains a component which may release flammable substances, including trimethylpentene, by distillation in systems with solvent recovery. This may lead to accumulation in the solvent circuit.

Section 11 – Toxicological Information

INFORMATION ON LIKELY ROUTES OF EXPOSURE

Ingestion:
May be ingested by accident. Ingestion may cause irritation and malaise.

Inhalation:
Inhalation is the primary route of exposure. In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.

Skin Contact:
Prolonged skin contact may cause redness and irritation.

Eye contact:
Eye contact is possible and should be avoided.

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS

Ingestion:

No data available.

Inhalation:

No data available.

Skin Contact:

No data available.

Eye contact:

No data available.

INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity

Oral Product:

ATEmix (): 2000 - 5000 mg/kg

Dermal Product:

ATEmix (): 2000 - 5000 mg/kg

Inhalation Product:

Not classified for acute toxicity based on available data.

Repeated dose toxicity Product:

No data available.

Skin Corrosion/Irritation Product:

No data available.

Serious Eye Damage/Eye Irritation Product:

No data available.

Respiratory or Skin Sensitization Product:

No data available.

Carcinogenicity Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

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:

No data available.

In vivo Product:

No data available.

Reproductive toxicity Product:
No data available.
Specific Target Organ Toxicity - Single Exposure Product:
No data available.
Specific Target Organ Toxicity - Repeated Exposure Product:
No data available.
Aspiration Hazard Product:
No data available.
Other effects:
No data available

Section 12 – Ecological Information

GENERAL INFORMATION:
This product has not been evaluated for ecological toxicity or other environmental effects.

Section 13 – Disposal Consideration

DISPOSAL INSTRUCTIONS:
Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. It is the responsibility of the product user or owner to determine at the time of disposal, which waste regulations must be applied.

CONTAMINATED PACKAGING:
Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14 – Transportation Information

This material is not subject to transport regulations.

Product Name ..... : RIDGID Nu-Clear Thread Cutting Oil

Section 15 – Regulatory Information

US FEDERAL REGULATIONS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories - None

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

US STATE REGULATIONS

US. California Proposition 65

No component is regulated by CA Prop 65.

Section 16 – Other Information

Prepared by:. . . . . Ridge Tool Company

Issue Date: . . . . . May 29, 2015
Last Revision Date: . . . . . May 29, 2015

Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **PTFE Tape**

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

Relevant identified use(s) • The tape is intended as an antiseize and sealant of pipe threads of liquid and gaseous oxygen systems of 2,000 psi or less.

Use(s) advised against • Incompatible with molten alkali metals, fluorine and other halogens, strong oxidizing agents.

1.3 Details of the supplier of the safety data sheet

Manufacturer • Swagelok Manufacturing Company

29495 F.A. Lennon Dr.
Solon, OH 44139
United States

Telephone (General) • 440-349-5600

1.4 Emergency telephone number

Manufacturer • (800)-424-9300 - Chemtrec

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Not classified

DSD/DPD • Not classified

2.2 Label Elements

CLP

Hazard statements • No label element(s) required

DSD/DPD

Risk phrases • No label element(s) required

2.3 Other Hazards

CLP • According to Regulation (EC) No. 1272/2008 (CLP) this material is not considered hazardous.

DSD/DPD • This product is not considered dangerous under the European Directive 67/548/EEC

UN GHS

According to: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2.1 Classification of the substance or mixture

UN GHS

- Not classified

2.2 Label elements

UN GHS

Hazard statements

- No label element(s) required

2.3 Other hazards

UN GHS

- According to the Globally Harmonized System for Classification and Labeling (GHS) this product is not considered hazardous.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Not classified

2.2 Label elements

OSHA HCS 2012

Hazard statements

- No label element(s) required

2.3 Other hazards

OSHA HCS 2012

- This product is not considered hazardous under the U.S. OSHA 29 CFR 1910.1200 Hazard Communication Standard.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Not classified

2.2 Label elements

WHMIS

- No label element(s) required.

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

Composition					
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
				UN GHS: Not Classified	

Polytetrafluoroethylene	**CAS:**9002-84-0	100%	NDA	**EU DSD/DPD:** Not Classified **EU CLP:** Not Classified **OSHA HCS 2012:** Not Classified	NDA

3.2 Mixtures

- Material does not meet the criteria of a mixture.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.

Skin
- IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

Eye
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub eyes. If eye irritation persists: Get medical advice/attention.

Ingestion
- If swallowed, seek medical advice immediately and show this container or label.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- Unlikely to cause ill effects. Inhaling fumes of decomposition products can cause temporary influenza-like symptoms are described as "polymer fume fever". Sympoms include fever, cough and malaise.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- SMALL FIRES: Dry chemical, CO2, water spray or regular foam.
  LARGE FIRE: Water spray, fog or regular foam.

Unsuitable Extinguishing Media
- No data available.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products
- At temperatures above 700ºF/371ºC, may produce decomposition products containing carbon monoxide, carbon dioxide, hydrogen.

5.3 Advice for firefighters

- Structural firefighters' protective clothing will only provide limited protection.
  Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures
- Keep unauthorized personnel away. Stay upwind.

6.2 Environmental precautions

- No special precautions required.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk.
SMALL SPILLS: Take up with sand or other non-combustible absorbent material and place into containers for later disposal.
LARGE SPILLS: Dike far ahead of liquid spill for later disposal.
Wash spill area with appropriate cleaner.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use good safety and industrial hygiene practices. Avoid prolonged skin contact. Avoid contact with eyes. No smoking while handling material. PTFE transferred to tobacco products can cause Polymer Fume Fever which exhibits flu like symptoms. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Store in a cool, dry place for optimal product performance. Store away from oxidizers. May decompose when heated above 700ºF/371ºC.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**China**	**Korea**
Polytetrafluoroethylene as Particulates not otherwise classified (PNOC)	STELs	Not established	Not established	Not established	16 mg/m3 STEL (free SiO2 <10%, except asbestos and toxic substances. Use PC-STEL of silica When free SiO2 >10%, total) *as Particulates not otherwise classified (PNOC)*	Not established
	TWAs	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) *as Particulates not otherwise classified (PNOC)*	10 mg/m3 TWA (inhalable); 3 mg/m3 TWA (respirable) *as Particulates not otherwise classified (PNOC)*	2.5 mg/m3 TWAEV (decomposition products; determine quantitatively the decomposition products in the air and express the results as Fluorides, listed under Polytetrafluoroethylene decomposition products)	8 mg/m3 TWA (free SiO2 <10%, except asbestos and toxic substances. Use PC-TWA of silica When free SiO2 >10%, total) *as Particulates not otherwise classified (PNOC)*	10 mg/m3 TWA (no more than 1% crystalline silica, Serial No. 717) *as Particulates not otherwise classified (PNOC)*

Exposure Limits/Guidelines (Con't.)		
	Result	**OSHA**
Polytetrafluoroethylene	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) *as Particulates not otherwise classified (PNOC)*

8.2 Exposure controls

Engineering Measures/Controls
- 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.

Personal Protective Equipment

Respiratory
- Use of a NIOSH approved organic vapor respirator when the product is being used in high temperature applications.

Eye/Face
- Use good standard practices when using this material.

Skin/Body
- Use good standard practices when using this material.

Environmental Exposure Controls
- Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15-minute exposures
TWAEV = Time-Weighted Average Exposure Value
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Natural (white) non-pigmented, non-toxic, plastic tape with no odor.
Color	Natural (white)	Odor	Odorless
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Data lacking	Melting Point	642 F(338.8889 C)
Decomposition Temperature	> 700 F(> 371.1111 C)	pH	Data lacking
Specific Gravity/Relative Density	2.1 to 2.2 Water=1	Water Solubility	Insoluble
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking	VOC (Wt.)	0 %
VOC (Vol.)	0 %	Volatiles (Wt.)	0 %
Volatiles (Vol.)	0 %		
Flammability			
Flash Point	Data lacking	UEL	Data lacking

LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- May give off hazardous fumes at temperatures above 392ºF/200ºC

10.5 Incompatible materials

- Relatively inert, as long as it is used at temperatures not exceeding 550ºF.

10.6 Hazardous decomposition products

- Carbon monoxide, carbon dioxide, hydrogen fluoride, and toxic organo-fluorine compounds.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Aspiration Hazard	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Carcinogenicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Germ Cell Mutagenicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Skin corrosion/Irritation	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
	EU/CLP • Data lacking

Skin sensitization	**OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
STOT-RE	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
STOT-SE	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Toxicity for Reproduction	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Respiratory sensitization	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking
Serious eye damage/Irritation	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking **UN GHS** • Data lacking

Potential Health Effects

Inhalation

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available.

Skin

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available.

Ingestion

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available.

Section 12 - Ecological Information

12.1 Toxicity

- No known ecological effects.

12.2 Persistence and degradability

- Not established.

12.3 Bioaccumulative potential

- No known adverse bioaccumulation or biomagnification effects.

12.4 Mobility in Soil

- Not applicable.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

14.6 Special precautions for user
- None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Data lacking.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications
- None

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Polytetrafluoroethylene	9002-84-0	No	No	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Polytetrafluoroethylene	9002-84-0	Yes	No	Yes	No	No

Inventory (Con't.)				
Component	**CAS**	**Japan ENCS**	**Korea KECL**	**TSCA**
Polytetrafluoroethylene	9002-84-0	Yes	Yes	Yes

Australia

Labor

Australia - Work Health and Safety Regulations - Hazardous Substances Requiring Health Monitoring

- Polytetrafluoroethylene 9002-84-0 Not Listed

Australia - High Volume Industrial Chemicals List

• Polytetrafluoroethylene	9002-84-0	Not Listed

Australia - List of Designated Hazardous Substances - Classification

• Polytetrafluoroethylene	9002-84-0	Not Listed

Environment

Australia - National Pollutant Inventory (NPI) Substance List

• Polytetrafluoroethylene	9002-84-0	Not Listed

Australia - Ozone Protection Act - Scheduled Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Australia - Priority Existing Chemical Program

• Polytetrafluoroethylene	9002-84-0	Not Listed

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Polytetrafluoroethylene	9002-84-0	Uncontrolled product according to WHMIS classification criteria

Canada - WHMIS - Ingredient Disclosure List

• Polytetrafluoroethylene	9002-84-0	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Polytetrafluoroethylene	9002-84-0	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Polytetrafluoroethylene	9002-84-0	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Polytetrafluoroethylene	9002-84-0	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Polytetrafluoroethylene	9002-84-0	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Polytetrafluoroethylene	9002-84-0	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan

Labor

Japan - ISHL Dangerous Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Designated Carcinogens

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Harmful Substances Prohibited for Manufacture

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Harmful Substances Requiring Workers to Subject to Medical Exams

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Harmful Substances Subject to Obtaining Permission for Manufacturing

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Harmful Substances Whose Names Are to be Indicated on the Label

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Prevention of Lead Poisoning

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Mutagens - Existing Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Mutagens - New Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Notifiable Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Environment

Japan - Air Pollution Control Law - Emission Standards for Air Pollutants

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Annual Air Quality

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Daily Air Quality

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Groundwater

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Hourly Air Quality

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Soil Pollution

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Public Water/Groundwater - Monitored Substances and Guideline Values

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Environmental Quality Standards - Public Water - Protection of Human Health

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Fluorocarbons Recovery and Destruction Law

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Offensive Odor Regulations - Specified Offensive Odor Substances - Maximum Permissible Concentration (MPCs)

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex A Group I

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex A Group II

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex B Group I

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex B Group II

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex B Group III

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex C Group I

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex C Group II

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex C Group III

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Ozone Depleting Substances - Annex E Group I

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Pollutant Release Transfer Register (PRTR) - Class 1 Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Pollutant Release Transfer Register (PRTR) - Class 2 Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Inventory - Japan - Industrial Safety and Health Law Substances (ISHL)

• Polytetrafluoroethylene	9002-84-0	Not Listed

Other

Japan - Drinking Water Quality Standards - Supplied Water Quality Standard Values

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Drinking Water Quality Standards - Quality Control Guideline Values

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Drinking Water Quality Standards - Quality Control Guideline Values - Pesticides

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Chemical Substance Control Law (CSCL) - Examined Existing Chemical Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Fire Service Law - Hazardous Materials

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Harmful Substances in Household Products

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Prevention of Tetraalkyl Lead Poisoning

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Japanese Pharmacopoeia Listing - Synthetics

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Japanese Pharmacopoeia Listing - Naturally Occurring Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Chemical Substance Control Law (CSCL) - Monitoring Chemical Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Poisonous and Deleterious Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Chemical Substance Control Law (CSCL) - Specified Chemical Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Poisonous and Deleterious Substances - Substances Not Considered Deleterious

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - Poisonous and Deleterious Substances - Substances Not Considered Poisonous

• Polytetrafluoroethylene	9002-84-0	Not Listed

Japan - ISHL Working Environment Evaluation Standards - Administrative Control Levels

• Polytetrafluoroethylene	9002-84-0	Not Listed

Korea

Labor

Korea - ISHA - Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying

• Polytetrafluoroethylene	9002-84-0	Not Listed

Korea - ISHA - Harmful Substances Requiring Permission

• Polytetrafluoroethylene	9002-84-0	Not Listed

Korea - ISHA - Name, Toxicity and Protective Measures of New Chemical Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

Environment

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Observational Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

Other

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Prohibited Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Restricted Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Toxic Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Polytetrafluoroethylene	9002-84-0	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Polytetrafluoroethylene	9002-84-0	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Polytetrafluoroethylene	9002-84-0	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Polytetrafluoroethylene	9002-84-0	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Polytetrafluoroethylene	9002-84-0	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date
- 22/June/2015

Preparation Date
- 01/June/2004

Disclaimer/Statement of Liability
- The information herein is given in good faith but no warranty, expressed or implied, is made.

Key to abbreviations

NDA = No data available

Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date 09.10.2013 Version number 7 Revision: 09.10.2013

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

· **Product identifier**

· **Trade name:** **Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion**

· **Relevant identified uses of the substance or mixture and uses advised against**

· **Article category** AC3 Electrical batteries and accumulators

· **Application of the substance / the preparation** Rechargeable Lithium Ion battery for power tools

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Hilti (Gt. Britain) Ltd.
1 Trafford Wharf Road
Trafford Park
GB-M17 1BY Manchester
Phone: 0800 886 100 (Freephone)
Fax: 0800 886 200 (Freefax)
Email: gbsales@hilti.com

· **Informing department:**

anchor.hse@hilti.com
see section 16

· **Emergency telephone number:**

Schweizerisches Toxikologisches Informationszentrum - 24 h Service
Tel.: 0041 / 44 251 51 51 (international)
.
Hilti (Gt. Britain) Ltd
Phone: 0800 886 100 (Freephone)
Fax: 0800 886 200 (Freefax)

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2 Hazards identification

· **Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

In accordance with article 3 (3) of REACH, this / these item(s) are articles.
An article is not subject to the mandatory marking regulations applicable to dangerous substances.
The product is not classified as hazardous to health or environment according to the CLP regulation.

· **Additional information:**

For the battery chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use there is no physical danger of ignition or explosion and chemical danger of hazardous materials leakage.
It may cause heat generation or electrolite leakage if battery terminals contact with other metals. Elektrolyte is flammable. In case of electrolyte leakage move the battery from fire immediately.

However if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery case will be breaked at the extreme, hazardous materials may be released.

Moreover, if heated strongly by a surrounding fire, acrid gas may be emitted.

· **Label elements**

· **Labelling according to Regulation (EC) No 1272/2008** Void

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

(Contd. on page 2)

Safety data sheet

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Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

(Contd. of page 1)

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:**
Lithium Ion rechercheable battery pack:

Name/Type	Lithiumequivalent (g)	Energy content (Wh)
B 7 / 1.5 Li-Ion	0,9	10,8
B 12 / 2.6 Li-Ion	2,34	28,1
B 14 / 1.6 Li-Ion	1,92	23
B 14 / 3.3 Li-Ion	3,84	46
B 18 / 1.6 Li-Ion	2,88	35
B 18 / 2.6 Li-Ion	4,68	56,16
B 18 / 3.3 Li-Ion	5,94	71,3
B 22 / 1.6 Li-Ion	2,88	35
B 22 / 2.6 Li-Ion	4,68	56,16
B 22 / 3.3 Li-Ion	5,94	71,3
B 36 / 2.6 Li-Ion	7,8	94
B 36 / 2.4 Li-Ion	7,2	86,4
B 144 / 2.6 Li-Ion	3,12	37,44

· **Dangerous components:**
This product contains a positive electrode (Lithium cobalt oxide), a negative electrode (graphite) and electrolyte (ethylene carbonate, diethyl carbonate and lithium hexafluorophosphate). The physical form of the product, however, precludes exposure to workers under normal conditions of use.

CAS: 1307-96-6 EINECS: 215-154-6	cobalt oxide Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Skin Sens. 1, H317	<30%
CAS: 1313-13-9 EINECS: 215-202-6	manganese dioxide Acute Tox. 4, H302; Acute Tox. 4, H332	<30%
CAS: 1313-99-1 EINECS: 215-215-7	nickel monoxide Carc. 1A, H350i; STOT RE 1, H372; Skin Sens. 1, H317; Aquatic Chronic 4, H413	<30%
CAS: 7440-44-0 EINECS: 231-153-3	carbon Flam. Liq. 3, H226; Self-heat. 1, H251	<30%
	Electrolyte; main ingredients: Lithium hexaflourophospate, organic carbonates Skin Corr. 1A, H314	<20%
CAS: 24937-79-9	Polyvinylidene fluoride (PVdF)	<10%
CAS: 7429-90-5	Aluminium foil	2-10%
CAS: 7440-50-8	Copper foil	2-10%

4 First aid measures

· **Description of first aid measures**
· **General information**
This product contains an organic electrolyte. If the electrolyte is leaking out of the battery pack, the following measures have to be taken.
· **After inhalation**
Take affected persons into the open air and position comfortably
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness bring patient into stable side position for transport.
· **After skin contact** Instantly wash with water and soap and rinse thoroughly. If skin irritation persist, call a physician.
· **After eye contact** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
· **After swallowing** Seek immediate medical advice.
· **Information for doctor**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

Safety data sheet
according to 1907/2006/EC, Article 31 / ISO 11014

Printing date 09.10.2013 **Version number 7** **Revision: 09.10.2013**

Trade name: Hilti B 7 / 1.5 Li-Ion Hilti B 12 / 2.6 Li-Ion Hilti B 14 / 1.6 Li-Ion Hilti B 14 / 3.3 Li-Ion Hilti B 18 / 1.6 Li-Ion Hilti B 18 / 2.6 Li-Ion Hilti B 18 / 3.3 Li-Ion Hilti B 22 / 1.6 Li-Ion Hilti B 22 / 2.6 Li-Ion Hilti B 22 / 3.3 Li-Ion Hilti B 36 / 2.4 Li-Ion Hilti B 36 / 2.6 Li-Ion Hilti B 144 / 2.6 Li-Ion

(Contd. of page 2)

· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents**
CO2, extinguishing powder or water jet. Fight larger fires with water jet.
Foam
· **For safety reasons unsuitable extinguishing agents** Water with full jet.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
In the event of fire, wear self contained breathing apparatus
Wear full protective suit.
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Keep away from ignition sources
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.
Keep people at a distance and stay on the windward side.
· **Environmental precautions:** Do not allow to enter the ground/soil.
· **Methods and material for containment and cleaning up:**
Absorb liquid components with liquid-binding material.
Collect mechanically.
· **Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

7 Handling and storage

· **Handling**
· **Precautions for safe handling**
Do not soak in water or seawater.
Do not expose to strong oxidizers.
Do not give a strong mechanical shock or fling.
Never disassemble, modify or deform.
Do not connect the positive terminal to the negative terminal with electrically conductive material.
Use only the chargers / electric tools specified by Hilti to charge or discharge the battery.
No special precautions necessary if used correctly.
· **Information about protection against explosions and fires:**
Do not throw into fire or expose to high temperatures (>85 °C).
Do not connect the positive terminal to the negative terminal with electrically conductive material.

· **Conditions for safe storage, including any incompatibilities**
· **Storage**
· **Requirements to be met by storerooms and containers:**
Avoid direct sunlight, high temperature, high humidity.
Store in a cool place (temperature: -20 °C ~ 35 °C, humidity: 45 - 85%)
· **Information about storage in one common storage facility:**
Do not store together with oxidizing and acidic materials.
Store away from water.
Do not store together with electrically conductive materials.

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Safety data sheet
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· **Further information about storage conditions:**
The accu-pack should be stored at 30 to 50% of the charging capacity.
Avoid storing in places where it is exposed to static electricity.
Protect from heat and direct sunlight.
Protect from humidity and keep away from water.

· **Storage class** 11
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists that were valid during the compilation were used as basis.

· **Exposure controls**
· **Personal protective equipment**
· **Breathing equipment:** Not required.
· **Protection of hands:** Not required.
· **Material of gloves** Not required.
· **Penetration time of glove material** Not required.
· **Eye protection:** Not required.
· **Body protection:**

Protective work clothing.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	plastic case
Colour:	Black / Red
· **Odour:**	Odourless
· **Odour threshold:**	Not determined
· **pH-value:**	Not applicable
· **Change in condition**	
Melting point/Melting range:	Not applicable
Boiling point/Boiling range:	Not applicable
· **Flash point:**	Not applicable
· **Inflammability (solid, gaseous)**	Not applicable
· **Ignition temperature:**	Not applicable
· **Decomposition temperature:**	Not applicable
· **Self-inflammability:**	Product is not selfigniting.
· **Danger of explosion:**	Risk of explosion by shock, friction, fire or other sources of ignition.
· **Critical values for explosion:**	
Lower:	Not determined
Upper:	Not determined

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Safety data sheet
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· **Oxidizing properties**	Not determined
· **Vapour pressure:**	Not determined
· **Density**	Not applicable
· **Relative density**	Not determined
· **Vapour density**	Not determined
· **Evaporation rate**	Not determined
· **Solubility in / Miscibility with Water:**	Not applicable
· **Viscosity:**	
dynamic:	Not determined
kinematic:	Not determined
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** Conductive materials, water, seawater, strong oxidizers and strong acids.
· **Hazardous decomposition products:** Acrid or harmful gas is emitted during fire

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:**
This product contains an organic electrolyte. If the electrolyte is leaking out of the battery pack, the following effects are known when getting into contact:
Irritant to skin and mucous membranes.
· **on the eye:** Irritant effect.
· **Sensitization:** No sensitizing effect known.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behaviour in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Do not allow battery packs to penetrate the soil.
The battery cell may corrode and electrolyte may leak.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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Safety data sheet
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13 Disposal considerations

· **Waste treatment methods**
· **Recommendation** Dispose of this battery pack according to national regulations or return the used battery pack to Hilti.

· **European waste catalogue**	
16 06 05	other batteries and accumulators
20 01 34	batteries and accumulators other than those mentioned in 20 01 33

· **Uncleaned packagings:**
· **Recommendation:**
Disposal must be made according to official regulations.
Dispose of packaging according to regulations on the disposal of packagings.

14 Transport information

· **UN-Number** · **ADR, ADN, IMDG, IATA**	Void
· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	Void
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	Void
· **Packing group** · **ADR, IMDG, IATA**	Void
· **Environmental hazards:** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications. Lithium-ion batteries are tested in accordance with: UN manual of Tests and Criteria, Part III, subsection 38.3
· **ADR** · **Remarks:**	Lithium ion batteries offered for carriage are not subject to other provisions of ADR/RID/GGVS/E. They meet the requirements of special provision SP 188.
· **IMDG** · **Remarks:**	Lithium ion batteries offered for carriage are not subject to other provisions of IMDG/GGVSee. They meet the requirements of special provision SP 188.
· **IATA** · **Remarks:**	Lithium ion batteries offered for transport are not subject to other additional requirements of these regulations. They meet the requirements of Packing Instruction 965/II (≤2 batteries) and 965/IB (>2 batteries).
· **UN "Model Regulation":**	-

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Safety data sheet

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **National regulations**

· **Other regulations, limitations and prohibitive regulations**
· **Substances of very high concern (SVHC) according to REACH, Article 57** None
· **Chemical safety assessment:** not required.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H226 Flammable liquid and vapour.
H251 Self-heating: may catch fire.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H350i May cause cancer by inhalation.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H413 May cause long lasting harmful effects to aquatic life.

· **Department issuing data specification sheet:**
Hilti Entwicklungsgesellschaft mbH
Hiltistrasse 6
D-86916 Kaufering
Tel.: +49 8191 906310
Fax: +49 8191 90176310
e-mail: anchor.hse@hilti.com
· **Contact:** Mechthild Krauter
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
· *** Data compared to the previous version altered.**

Victaulic® Lubricant SDS (Safety Data Sheet)

05.02

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

1.1. Product Identifier

Product name : Victaulic Lubricant

1.2. Intended Use Of The Product

Use of the substance/preparation : A Pipe Joint Lubricant. For professional use only.

1.3. Name, Address, And Telephone Of The Responsible Party

Company

Victaulic Company
4901 Kesslersville Road
Easton, PA 18045
610-559-3300
web: www.victaulic.com

Manufacturer

JTM Products, Inc.
31025 Carter Street
Solon, OH 44139
440-287-2302

1.4. Emergency telephone number

Emergency number : 610-559-3300 Hours 9am-5pm EST M-F

SECTION 2: Hazards identification

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

This material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

2.2. Label Elements

GHS-US labeling

Not applicable

2.3. Other Hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

70 – 80% of the mixture consists of ingredient(s) of unknown acute toxicity.

Job/Owner

System No.	
Location	

Contractor

Submitted By	
Date	

Engineer

Spec Section	
Paragraph	
Approved	
Date	

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product Identifier	%	Classification (GHS-US)
Fatty acids, tall-oil, potassium salts	(CAS No) 61790-44-1	70–80	Not classified
1,2-Propylene glycol	(CAS No) 57-55-6	10–20	Not classified
Mica	(CAS No) 12001-26-2	5–10	Not classified

SECTION 4: Description of first aid measures

4.1. Description of first aid measures

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

First-aid measures after inhalation : If symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing.

First-aid measures after skin contact : Remove contaminated clothing. Gently wash with plenty of soap and water. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting.

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

Symptoms/injuries : Not expected to present a significant health hazard under normal conditions of use.

Symptoms/injuries after inhalation : Not expected to present a significant inhalation hazard.

Symptoms/injuries after skin contact : May cause irritation from prolonged/repeated periods of use.

Symptoms/injuries after eye contact : May cause eye irritation.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

4.3 Indication of any immediate medical attention and special treatment needed

If you feel unwell, get medical advice and attention.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

Unsuitable extinguishing media : Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not considered flammable but may burn at high temperatures.

Explosion hazard : Product is not explosive.

Reactivity : Hazardous reactions will not occur.

5.3. Advice for firefighters

Precautionary measures fire : Exercise caution when fighting any chemical fire.

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

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid all contact with eyes, skin, or clothing.

6.1.1. For non-emergency personnel

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

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Absorb and/or contain spill with inert material, then place in suitable container.

Methods for cleaning up : Clear up spills immediately and dispose of waste safely.

6.4. Reference to other sections

See heading 8, exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid all contact with eyes, skin, or clothing.

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

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Store in a dry, cool and well-ventilated place.

Incompatible products : Strong acids. Strong bases. Strong oxidizers.

7.3. Specific end use(s)

A Pipe Joint Lubricant. For professional use only.

8.1. Control parameters

Mica (12001-26-2)		
USA ACGIH	ACGIH TWA (mg/m³)	3 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	3 mg/m³ (containing <1% Quartz)
USA IDLH	US IDLH (mg/m³)	1500 mg/m³ (containing <1% Quartz)

8.2. Exposure controls

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

Personal protective equipment : Not generally required but may be necessary as conditions warrant.

Materials for protective clothing : Chemically resistant materials and fabrics.

Hand protection : Protective gloves.

Eye protection : Safety glasses

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits.

Other information : When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Amber viscous paste
Odor	:	Mild
Odor threshold	:	No data available
pH	:	11
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	< 0°C (32°F)
Freezing point	:	No data available
Boiling point	:	> 104°C (220°F)
Flash Point	:	> 104°C (220°F)
Auto-ignition temperature	:	No data available
Decomposition Temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	1.08 (water = 1)
Density	:	9.01 lbs/gal
Solubility	:	Soluble in water
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	Not applicable

9.2. Other information

VOC content : 146 g/L

SECTION 10: Stability and reactivity

10.1. Reactivity

Hazardous reactions will not occur.

10.2. Chemical stability

Stable at standard temperature and pressure.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO_2). Silicon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

1,2-Propylene glycol (57-55-6)	
LD50 oral rat	20000 mg/kg
LD50 dermal rabbit	20800 mg/kg

Skin corrosion/irritation : Not classified (pH: 11).

Serious eye damage/irritation : Not classified (pH: 11).

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Not expected to present a significant hazard under normal conditions of use.

Symptoms/injuries after inhalation : Not expected to present a significant inhalation hazard.

Symptoms/injuries after skin contact : May cause skin irritation through repeated/prolonged periods of use.

Symptoms/injuries after eye contact : May cause eye irritation.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

SECTION 12: Ecological information

12.1. Toxicity

1,2-Propylene glycol (57-55-6)	
LC50 fishes 1	51600 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	10000 mg/l (Exposure time: 24 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	19000 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata)
LC50 fish 2	41 (41 - 47) mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 2	1000 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and degradability

Victaulic Lubricant	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Victaulic Lubricant	
Bioaccumulative potential	Not established.
1,2-Propylene glycol (57-55-6)	
BCF fish 1	< 1

12.4. Mobility in soil

No additional information available

12.4. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

In accordance with ICAO/IATA/DOT/TDG

14.1. UN number

Not regulated for transport.

14.2. UN proper shipping name

Not regulated for transport.

14.3. Additional information

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

1,2-Propylene glycol (57-55-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	Y2 - Y2 - indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.
Fatty acids, tall-oil, potassium salts (61790-44-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.3. US State regulations

Mica (12001-26-2)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Hawaii - Occupational Exposure Limits - TWAs
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - Mineral Dusts
U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Occupational Exposure Limits - Mineral Dusts
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - Mineral Dusts
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
1,2-Propylene glycol (57-55-6)
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

SECTION 16: Other information

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

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

SDS US (GHS HazCom)

Installation
Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty
Refer to the Warranty section of the current Price List or contact Victaulic for details.

Note
This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Trademarks
Victaulic is a registered trademarks of Victaulic Company.

FS-ONE
High Performance Intumescent Firestop Sealant

Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

Product features

- Smoke, gas and water resistant after material has cured
- Contains no halogen, solvents or asbestos
- High fire rating properties
- Water based, easy to clean
- Protects most typical firestop penetration applications
- Paintable
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

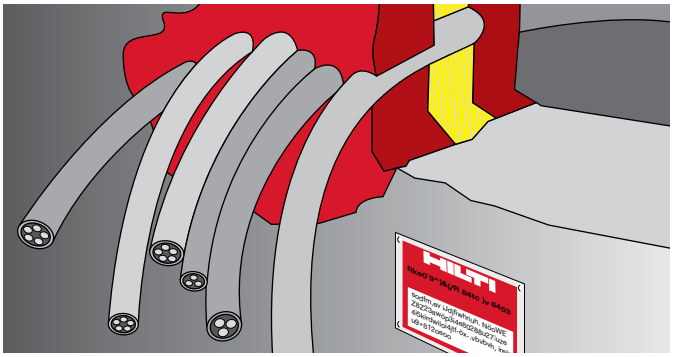
- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes
- HVAC penetrations

For use with

- Concrete, masonry, drywall and wood floor assemblies
- Wall and floor assemblies rated up to 4 hours

Examples

- Sealing around combustible pipe penetrations in fire rated construction
- Sealing around non-combustible penetrations in fire rated construction



Technical Data*	FS-ONE
Chemical basis	Water-based intumescent acrylic dispersion
Color	Red
Application temperature	40°F to 104°F (5°C to 40°C)
Skin forming time	Approx. 20-30 min.
Curing time	Approx. 2 mm / 3 days
Average volume shrinkage (ASTM C1241)	24.1%
Movement capability	Approx. 5%
Expansion rate (unrestricted)	Up to 3-5 times original volume
Temperature resistance (cured)	–40°F to 212°F (–40°C to 100°C)
Surface burning characteristics (ASTM E 84-96)	Flame Spread: 0 Smoke Development: 5
Sound transmission classification (ASTM E 90-99)	56 (Relates to specific construction)
Approvals • California State Fire Marshal - No. 4485-1200:108 • City of New York - MEA 326-96-M Vol. IV	
Tested in accordance with • UL 1479 • ASTM E 814 • ASTM E 84	

*At 73°F (23°C) and 50% relative humidity

CLASSIFIED C UL US — FILL, VOID OR CAVITY MATERIAL FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS SEE UL FIRE RESISTANCE DIRECTORY 66Y7

FM APPROVED

FBC SYSTEM COMPATIBLE

Installation instructions for FS-ONE

Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

Opening

1. Clean the opening. Surfaces to which FS-ONE will be applied should be cleaned of loose debris, dirt, oil, moisture, frost and wax. Structures supporting penetrating items must be installed in compliance with local building and electrical standards.

Application of firestop sealant

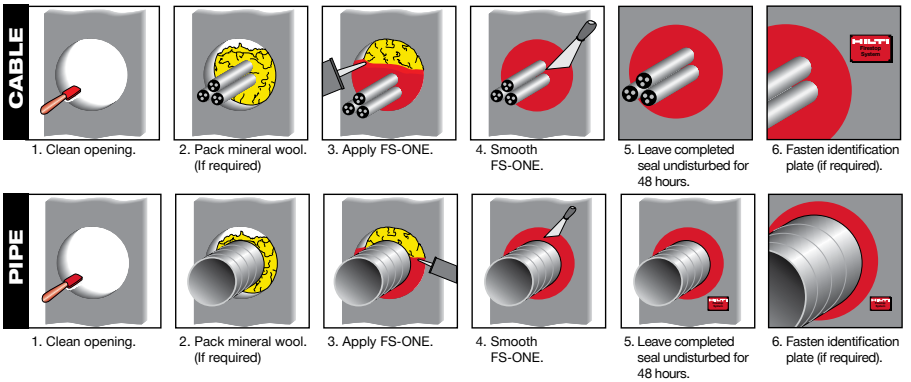
2. Install the prescribed backfilling material type and depth to obtain the desired rating (if required). Leave sufficient depth for applying FS-ONE.
3. Application of firestop sealant: Apply FS-ONE to the required depth in order to obtain the desired fire rating. Make sure FS-ONE contacts all surfaces to provide maximum adhesion. For application of FS-ONE use a standard caulking gun, foil pack gun, bulk loader and bulk gun. With FS-ONE buckets, Graco type sealant pumps may be used. (Contact pump manufacturer for proper selection).
4. Smoothing of firestop sealant: To complete the seal, tool immediately to give a smooth appearance. Excess sealant, prior to curing, can be cleaned away from adjacent surfaces and tools with water.
5. Leave completed seal undisturbed for 48 hours.
6. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

Not for use

- High movement expansion joints
- Underwater
- On materials where oil, plasticizers or solvents may bleed i.e. impregnated wood, oil based seals, green or partially vulcanized rubber
- In any penetration other than those specifically described in this manual or the test reports

Storage

- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the packag



Hilti. Outperform. Outlast.

MATERIAL SAFETY DATA SHEET

Product name: **FS-ONE High Performance Intumescent Firestop Sealant**

Description: One-part acrylic-based sealant

Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121

Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m^3 (T)	10 mg/m^3 (T)	NE
Zinc borate	138265-88-0	NE	NE	NE
Ammonium polyphosphate	068333-79-9	NE	NE	NE
Talc	014807-96-6	20 mppcf	2 mg/m^3	NE
Expandable graphite	012777-87-6	5 mg/m^3 (T)	2 mg/m^3 (T)	NE
Ethylene glycol	000107-21-1	NE	C:100 mg/m^3 (A)	NE
Polybutene	009003-29-6	NE	NE	NE
Iron oxide	001309-37-1	10 mg/m^3	5 mg/m^3	NE
Glass filament	065997-17-3	NE	5 mg/m^3 (T)	NE
Silicon dioxide	014808-60-7	0.05 mg/m^3 (T)	0.1 mg/m^3 (T)	NE
Water	007732-18-5	NE	NE	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **C** = Ceiling. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **(T)** indicates "as total dust". **(R)** indicates "as respirable fraction". **(A)** indicates "as an aerosol". **mppcf** = million particles per cubic foot.

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Odorless.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	23mbar @ 20C / 68F
Boiling Point:	Not applicable.	**VOC Content:**	75.0 g/L.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
Specific Gravity:	1.5	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Non-flammable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Not applicable. Use extinguishing media as appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and oxidizing agents.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
Medical Conditions Aggravated by Exposure:	Eye and skin conditions.
Routes of Exposure:	Dermal.

Carcinogenicity:	IARC classifies crystalline silica (quartz sand) as Group I based upon evidence among workers in industries where there has been long-term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. This product does not pose a dust hazard; therefore, this classification is not relevant. Based upon the nature and intended use of this product, it does not pose an increased cancer risk to workers.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Call a physician if symptoms occur.
Skin:	Immediately wipe off material and wash with soap and water. Material can adhere to the skin. If material has adhered to the skin, use an abrasive containing hand cleaner. If material does not come off, buff with a pumice stone.
Inhalation:	Move victim to fresh air if discomfort develops. Call a physician if symptoms persist.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a physician. If a large quantity was ingested, give 1 to 2 glasses of water to dilute. Never give anything by mouth to an unconscious person.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses should be worn in most industrial settings.
Skin Protection:	Avoid skin contact. Cloth gloves are suitable for hand protection.
Respiratory Protection:	None normally required. Where ventilation is inadequate to control vapors, use a NIOSH-approved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool, dry area preferably between 40º and 77º F. Keep from freezing. Do not store in direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.
Spill Procedures:	Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Certificate of Compliance

Certificate Number **20100512-R13240**
Report Reference **2010 May 12**
Issue Date **2010 May 12**

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.

54 S 122ND East AVe
Tulsa, OK 74146 USA

This is to certify that representative samples of Fill, Void or Cavity Materials
FS-ONE

Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05
Third Edition, revised March 1, 2010

Additional Information: FS-ONE Sealant for use in Joint Systems and FS-ONE for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

Only those products bearing the UL Classification Mark should be considered as being covered by UL's Classification and Follow-Up Service.

The UL Classification Mark includes: UL in a circle symbol: with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and, the product category name (product identity) as indicated in the appropriate UL Directory.

Look for the UL Classification Mark on the product

Issued by:
Mona Couloute
Mona Couloute
Underwriters Laboratories Inc.

Reviewed by:
Chris J. Johnson
Underwriters Laboratories Inc.

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: PROPANE

TRADE NAMES/SYNONYMS:
MTG MSDS 76; N-PROPANE; DIMETHYLMETHANE; PROPYL HYDRIDE; R-290; PROPYLHYDRIDE; LIQUEFIED PETROLEUM GAS; LPG; >96% NATURAL GRADE; >99.9% PURE GRADE; UN 1978; C3H8; MAT19690; RTECS TX2275000

CHEMICAL FAMILY: hydrocarbons, aliphatic

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: PROPANE
CAS NUMBER: 74-98-6
PERCENTAGE: >96

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
ODOR: gasoline odor
MAJOR HEALTH HAZARDS: central nervous system depression, difficulty breathing
PHYSICAL HAZARDS: Flammable gas. May cause flash fire.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: nausea, vomiting, irregular heartbeat, headache, symptoms of drunkenness,

disorientation, suffocation, convulsions, coma
LONG TERM EXPOSURE: same as effects reported in short term exposure
SKIN CONTACT:
SHORT TERM EXPOSURE: blisters, frostbite
LONG TERM EXPOSURE: no information on significant adverse effects
EYE CONTACT:
SHORT TERM EXPOSURE: frostbite, blurred vision
LONG TERM EXPOSURE: no information is available
INGESTION:
SHORT TERM EXPOSURE: frostbite
LONG TERM EXPOSURE: no information is available

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

EYE CONTACT: Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Severe explosion hazard. Gas/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any

discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.

FLASH POINT: -157 F (-105 C)
LOWER FLAMMABLE LIMIT: 2.1%
UPPER FLAMMABLE LIMIT: 9.5%
AUTOIGNITION: 842 F (450 C)

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.110. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
PROPANE:
1000 ppm (1800 mg/m3) OSHA TWA
1000 ppm (1800 mg/m3) NIOSH recommended TWA 10 hour(s)

LIQUIFIED PETROLEUM GAS (LPG):
1000 ppm (1800 mg/m3) OSHA TWA
1000 ppm (1800 mg/m3) NIOSH recommended TWA 10 hour(s)

ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4):
1000 ppm ACGIH TWA

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
2100 ppm
Any supplied-air respirator.
Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: gasoline odor
MOLECULAR WEIGHT: 44.11
MOLECULAR FORMULA: C-H3-C-H2-C-H3
BOILING POINT: -40 F (-40 C)
FREEZING POINT: -310 F (-190 C)
VAPOR PRESSURE: 6398 mmHg @ 21.1 C
VAPOR DENSITY (air=1): 1.55
SPECIFIC GRAVITY (water=1): 0.5853 @ -45 C
WATER SOLUBILITY: very slightly soluble
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: 5000-20000 ppm
EVAPORATION RATE: Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
Soluble: absolute alcohol, ether, chloroform, benzene, turpentine

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: oxidizing materials, combustible materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of carbon

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

PROPANE:
TARGET ORGANS: central nervous system
ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Propane
ID NUMBER: UN1978
HAZARD CLASS OR DIVISION: 2.1
LABELING REQUIREMENTS: 2.1
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: 150 kg

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Propane
UN NUMBER: UN1978
CLASS: 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A, B1.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

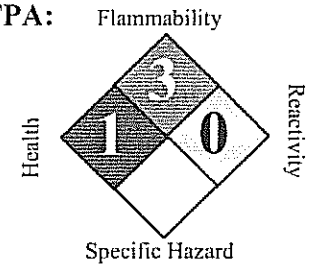
CANADA INVENTORY (DSL/NDSL): Listed on inventory.

16. OTHER INFORMATION

MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR USE. MATHESON TRI-GAS, INC. SHALL NOT BE

Safety Data Sheet
Gasoline, Unleaded

NFPA:



TESORO

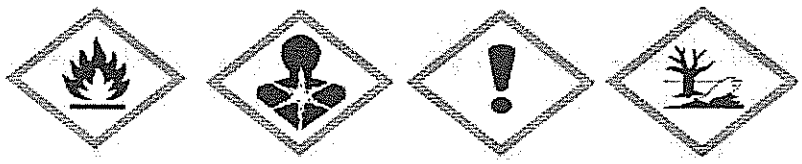
SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Gasoline, Unleaded			
Synonyms	:	Blend of Highly Flammable Petroleum Distillates, Regular, Mid-Grade, Premium, 888100008809			
SDS Number	:	888100008809	**Version**	:	1.1
Product Use Description	:	Fuel			
Company	:	For: Tesoro Refining & Marketing Co. 19100 Ridgewood Parkway, San Antonio, TX 78259			
Tesoro Call Center	:	(877) 783-7676	**Chemtrec (Emergency Contact)**	:	(800) 424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classifications : Flammable Liquid – Category 1 or 2 depending on formulation.
Aspiration Hazard – Category 1
Carcinogenicity – Category 2
Specific Target Organ Toxicity (Repeated Exposure) – Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3
Skin Irritation – Category 2
Eye Irritation – Category 2B
Chronic Aquatic Toxicity – Category 2

Pictograms :



Signal Word : **Danger**

Hazard Statements

Extremely flammable liquid and vapor.
May be fatal if swallowed and enters airways – do not siphon gasoline by mouth.
Suspected of causing blood cancer if repeated over-exposure by inhalation and/or skin contact occurs.
May cause damage to liver, kidneys and nervous system by repeated and prolonged inhalation or skin contact. Causes eye irritation. Can be absorbed through skin.
May cause drowsiness or dizziness. Extreme exposure such as intentional inhalation may cause unconsciousness, asphyxiation and death.
Repeated or prolonged skin contact can cause irritation and dermatitis.

Harmful to aquatic life.

Precautionary statements

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, welding and hot surfaces.
No smoking.
Keep container tightly closed.
Ground and/or bond container and receiving equipment.
Use explosion-proof electrical equipment.
Use only non-sparking tools (if tools are used in flammable atmosphere).
Take precautionary measures against static discharge.
Wear gloves, eye protection and face protection (as needed to prevent skin and eye contact with liquid).
Wash hands or liquid-contacted skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Do not breathe vapors.
Use only outdoors or in a well-ventilated area.

Response : In case of fire: Use dry chemical, CO2, water spray or fire fighting foam to extinguish.
If swallowed: Immediately call a poison center, doctor, hospital emergency room, medical clinic or 911. Do NOT induce vomiting. Rinse mouth.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eye: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin or eye irritation persists, get medical attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Get medical attention if you feel unwell.

Storage : Store in a well ventilated place. Keep cool. Store locked up. Keep container tightly closed . Use only approved containers. Some containers not approved for gasoline may dissolve and release flammable gasoline liquid and vapors.

Disposal : Dispose of contents/containers to approved disposal site in accordance with local, regional, national, and/or international regulations.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Weight %
Gasoline, natural; Low boiling point naphtha	8006-61-9	10 - 30%
Toluene	108-88-3	10 - 30%
Xylene	1330-20-7	10 - 30%
Ethanol; ethyl alcohol	64-17-5	0-8.2%
Trimethylbenzene	25551-13-7	1 - 5%
Isopentane; 2-methylbutane	78-78-4	1 - 5%

Naphthalene	91-20-3	1 - 5%
Benzene	71-43-2	Less than 1.3%
Pentane	109-66-0	1 - 5%
Cyclohexane	110-82-7	1 - 5%
Ethylbenzene	100-41-4	1 - 5%
Butane	106-97-8	1 - 20%
Heptane [and isomers]	142-82-5	0.5 - 0.75%
N-hexane	110-54-3	0.5 - 0.75%

SECTION 4. FIRST AID MEASURES

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

Skin contact : In case of contact, immediately flush skin with plenty of water. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Contaminated leather, particularly footwear, must be discarded. Note that contaminated clothing may be a fire hazard. Seek medical advice if symptoms persist or develop.

Eye contact : Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical advice if symptoms persist or develop.

Ingestion : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention.

Notes to physician : Symptoms: Dizziness, Discomfort, Headache, Nausea, Kidney disorders, Liver disorders. Aspiration may cause pulmonary edema and pneumonitis. Swallowing gasoline is more likely to be fatal for small children than adults, even if aspiration does not occur.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray or fire fighting foam. LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers. Keep containers and surroundings cool with water spray.

Specific hazards during fire fighting : Extremely flammable liquid and vapor. This material is combustible/flammable and is sensitive to fire, heat, and static discharge.

Special protective equipment for fire-fighters : Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Further information	:	Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam. Exposure to decomposition products may be a hazard to health. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Evacuate personnel to safe areas. Ventilate the area. Remove all sources of ignition. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).
Environmental precautions	:	Discharge into the environment must be avoided. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling	:	Keep away from fire, sparks and heated surfaces. No smoking near areas where material is stored or handled. The product should only be stored and handled in areas with intrinsically safe electrical classification. Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initated fire or explosion during transfer, storage or handling, include but are not limited to these examples: (1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators. (2) Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such gasoline or naphtha). (3) Storage tank level floats must be effectively bonded. For more information on precautions to prevent static-initated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).
Conditions for safe storage, including incompatibilities	:	Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

Reports suggest that government-mandated ethanol, if present, may not be compatible with fiberglass gasoline tanks. Ethanol may dissolve fiberglass resin, causing engine damage and possibly allow leakage of explosive gasoline.

Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids.

No decomposition if stored and applied as directed. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Store only in containers approved and labeled for gasoline.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

List	Components	CAS-No.	Type:	Value
OSHA	Benzene	71-43-2	TWA	1 ppm
		71-43-2	STEL	5 ppm
		71-43-2	OSHA_ACT	0.5 ppm
OSHA Z1	Xylene	1330-20-7	PEL	100 ppm 435 mg/m3
	Ethanol; Ethyl alcohol	64-17-5	PEL	1,000 ppm 1,900 mg/m3
	Naphthalene	91-20-3	PEL	10 ppm 50 mg/m3
	Cyclohexane	110-82-7	PEL	300 ppm 1,050 mg/m3
	Ethylbenzene	100-41-4	PEL	100 ppm 435 mg/m3
	Heptane [and isomers]	142-82-5	PEL	500 ppm 2,000 mg/m3
	N-hexane	110-54-3	PEL	500 ppm 1,800 mg/m3
ACGIH	Toluene	108-88-3	TWA	50 ppm
	Xylene	1330-20-7	TWA	100 ppm
		1330-20-7	STEL	150 ppm
	Ethanol; Ethyl alcohol	64-17-5	TWA	1,000 ppm
	Trimethylbenzene	25551-13-7	TWA	25 ppm
	Isopentane; 2-Methylbutane	78-78-4	TWA	600 ppm
	Naphthalene	91-20-3	TWA	10 ppm
		91-20-3	STEL	15 ppm
	Benzene	71-43-2	TWA	0.5 ppm
		71-43-2	STEL	2.5 ppm
	Pentane	109-66-0	TWA	600 ppm
	Cyclohexane	110-82-7	TWA	100 ppm
	Ethylbenzene	100-41-4	TWA	100 ppm
		100-41-4	STEL	125 ppm
	Heptane [and isomers]	142-82-5	TWA	400 ppm
		142-82-5	STEL	500 ppm

	N-hexane	110-54-3	TWA	50 ppm

Engineering measures : Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use only intrinsically safe electrical equipment approved for use in classified areas.

Eye protection : Safety glasses or goggles are recommended where there is a possibility of splashing or spraying. Ensure that eyewash stations and safety showers are close to the workstation location.

Hand protection : Gloves constructed of nitrile or neoprene are recommended. Consult manufacturer specifications for further information.

Skin and body protection : If needed to prevent skin contact, chemical protective clothing such as of DuPont TyChem®, Saranex or equivalent recommended based on degree of exposure. Flame resistant clothing such as Nomex ® is recommended in areas where material is stored or handled.

Respiratory protection : A NIOSH/ MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection. Use a NIOSH/ MSHA-approved positive-pressure supplied-air respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Work / Hygiene practices : Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Clear to straw colored liquid

Odor : Characteristic hydrocarbon-like

Odor threshold 0.5 - 1.1 ppm

pH : Not applicable

Melting point/freezing point About -101°C (-150°F)

Initial boiling point & range Boiling point varies: 30 – 200°C (85 – 392°F)

Flash point < -21°C (-5.8°F)

Evaporation rate : Higher initially and declining as lighter components evaporate

Flammability (solid, gas) : Flammable vapor released by liquid

Upper explosive limit	7.6 %(V)
Lower explosive limit	1.3 %(V)
Vapor pressure	345 - 1,034 hPa at 37.8 °C (100.0 °F)
Vapor density (air = 1)	Approximately 3 to 4
Relative density (water = 1)	0.8 g/mL
Solubility (in water)	Negligible
Partition coefficient (n-octanol/water)	2 – 7 as log Pow
Auto-ignition temperature	Approximately 250°C (480°F)
Decomposition temperature	Will evaporate or boil and possibly ignite before decomposition occurs.
Kinematic viscosity	0.64 to 0.88 mm^2/s range reported for gasoline
Conductivity (conductivity can be reduced by environmental factors such as a decrease in temperature)	: Hydrocarbon liquids without static dissipater additive may have conductivity below 1 picoSiemens per meter (pS/m). The highest electro-static ignition risks are associated with "ultra-low conductivities" below 5 pS/m. See Section 7 for sources of information on defining safe loading and handling procedures for low conductivity products.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Vapors may form explosive mixture with air. Hazardous polymerization does not occur.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	Can react with strong oxidizing agents, peroxides, alkaline products and strong acids. Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.
Conditions to avoid	: Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Avoid static charge accumulation and discharge (see Section 7).
Hazardous decomposition products	: Ignition and burning can release carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

SECTION 11. TOXICOLOGICAL INFORMATION

Skin contact	: Irritating to skin. Can be partially absorbed through skin.
Eye contact	: Irritating to eyes.
Ingestion	: Aspiration hazard if liquid is inhaled into lungs, particularly from vomiting after ingestion. Aspiration may result in chemical pneumonia, severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death may occur.

Inhalation and further information

Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can produce headache, lassitude, weariness, dizziness, drowsiness, over excitation. Exposure to very high levels can result in unconsciousness and death.

Repeated over-exposure may cause liver and kidney injuries.
Components of the product may affect the nervous system.

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.
This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

Component:

Gasoline, natural; Low boiling point naphtha	8006-61-9	Acute oral toxicity: LD50 rat Dose: 18.8 mg/kg Acute inhalation toxicity: LC50 rat Dose: 20.7 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation Eye irritation: Classification: Irritating to eyes. Result: Moderate eye irritation
Toluene	108-88-3	Acute oral toxicity: LD50 rat Dose: 636 mg/kg Acute dermal toxicity: LD50 rabbit Dose: 12,124 mg/kg Acute inhalation toxicity: LC50 rat Dose: 49 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation Prolonged skin contact may defat the skin and produce dermatitis. Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation
Xylene	1330-20-7	Acute oral toxicity: LD50 rat Dose: 2,840 mg/kg Acute dermal toxicity: LD50 rabbit Dose: ca. 4,500 mg/kg Acute inhalation toxicity: LC50 rat Dose: 6,350 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation

		Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation
Ethanol; Ethyl alcohol	64-17-5	Acute oral toxicity: LD50 rat Dose: 6,200 mg/kg Acute dermal toxicity: LD50 rabbit Dose: 19,999 mg/kg Acute inhalation toxicity: LC50 rat Dose: 8,001 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation Prolonged skin contact may cause skin irritation and/or dermatitis. Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation Mild eye irritation
Naphthalene	91-20-3	Acute oral toxicity: LD50 rat Dose: 2,001 mg/kg Acute dermal toxicity: LD50 rat Dose: 2,501 mg/kg Acute inhalation toxicity: LC50 rat Dose: 101 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation Carcinogenicity: N11.00422130
Benzene	71-43-2	Acute oral toxicity: LD50 rat Dose: 930 mg/kg Acute inhalation toxicity: LC50 rat Dose: 44 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. Eye irritation: Classification: Irritating to eyes. Result: Risk of serious damage to eyes.
Pentane	109-66-0	Acute oral toxicity: LD50 rat Dose: 2,001 mg/kg Acute inhalation toxicity: LC50 rat Dose: 364 mg/l Exposure time: 4 h Skin irritation: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation
Cyclohexane	110-82-7	Acute dermal toxicity: LD50 rabbit Dose: 2,001 mg/kg Acute inhalation toxicity: LC50 rat Dose: 14 mg/l Exposure time: 4 h

		Skin irritation: Classification: Irritating to skin. Result: Skin irritation Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation
Ethylbenzene	100-41-4	Acute oral toxicity: LD50 rat Dose: 3,500 mg/kg Acute dermal toxicity: LD50 rabbit Dose: 15,500 mg/kg Acute inhalation toxicity: LC50 rat Dose: 18 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Mild skin irritation Eye irritation: Classification: Irritating to eyes. Result: Risk of serious damage to eyes.
Heptane [and isomers]	142-82-5	Acute oral toxicity: LD50 rat Dose: 15,001 mg/kg Acute inhalation toxicity: LC50 rat Dose: 103 g/m3 Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation
N-hexane	110-54-3	Acute oral toxicity: LD50 rat Dose: 25,000 mg/kg Acute dermal toxicity: LD50 rabbit Dose: 2,001 mg/kg Acute inhalation toxicity: LC50 rat Dose: 171.6 mg/l Exposure time: 4 h Skin irritation: Classification: Irritating to skin. Result: Skin irritation Eye irritation: Classification: Irritating to eyes. Result: Mild eye irritation Teratogenicity: N11.00418960

Carcinogenicity

NTP	:	Naphthalene (CAS-No.: 91-20-3) Benzene (CAS-No.: 71-43-2)
IARC	:	Gasoline, natural; Low boiling point naphtha (CAS-No.: 8006-61-9) Naphthalene (CAS-No.: 91-20-3) Benzene (CAS-No.: 71-43-2) Ethylbenzene (CAS-No.: 100-41-4)
OSHA	:	Benzene (CAS-No.: 71-43-2)
CA Prop 65	:	WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Toluene (CAS-No.: 108-88-3)

Benzene (CAS-No.: 71-43-2)

SECTION 12. ECOLOGICAL INFORMATION

Additional ecological information : Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

Component:

Toluene	108-88-3	Toxicity to fish: LC50 Species: Carassius auratus (goldfish) Dose: 13 mg/l Exposure time: 96 h Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 11.5 mg/l Exposure time: 48 h Toxicity to algae: IC50 Species: Selenastrum capricornutum (green algae) Dose: 12 mg/l Exposure time: 72 h
Ethanol; Ethyl alcohol	64-17-5	Toxicity to fish: LC50 Species: Leuciscus idus (Golden orfe) Dose: 8,140 mg/l Exposure time: 48 h Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 9,268 - 14,221 mg/l Exposure time: 48 h
Isopentane; 2-Methylbutane	78-78-4	Toxicity to fish: LC50 Species: Oncorhynchus mykiss (rainbow trout) Dose: 3.1 mg/l Exposure time: 96 h Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 2.3 mg/l Exposure time: 96 h
Naphthalene	91-20-3	Toxicity to algae: EC50 Species: Dose: 33 mg/l Exposure time: 24 h
Pentane	109-66-0	Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 9.74 mg/l Exposure time: 48 h
Cyclohexane	110-82-7	Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 3.78 mg/l Exposure time: 48 h

Heptane [and isomers]	142-82-5	Toxicity to fish LC50 Species: Carassius auratus (goldfish) Dose: 4 mg/l Exposure time: 24 h Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 1.5 mg/l Exposure time: 48 h
N-hexane	110-54-3	Toxicity to fish LC50 Species: Pimephales promelas (fathead minnow) Dose: 2.5 mg/l Exposure time: 96 h Acute and prolonged toxicity for aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 2.1 mg/l Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal : Dispose of container and unused contents in accordance with federal, state and local requirements.

SECTION 14. TRANSPORT INFORMATION

CFR

Proper shipping name	: Petrol
UN-No.	: 1203
Class	: 3
Packing group	: II

TDG

Proper shipping name	: Gasoline
UN-No.	: UN1203
Class	: 3
Packing group	: II

IATA Cargo Transport

UN UN-No.	: UN1203
Description of the goods	: Gasoline
Class	: 3
Packaging group	: II
ICAO-Labels	: 3
Packing instruction (cargo aircraft)	: 364
Packing instruction (cargo aircraft)	: Y341

IATA Passenger Transport

UN UN-No.	: UN1203
Description of the goods	: Gasoline
Class	: 3

	Packaging group	: II
	ICAO-Labels	: 3
	Packing instruction (passenger aircraft)	: 353
	Packing instruction (passenger aircraft)	: Y341
IMDG-Code		
	UN-No.	: UN 1203
	Description of the goods	: Gasoline
	Class	: 3
	Packaging group	: II
	IMDG-Labels	: 3
	EmS Number	: F-E S-E
	Marine pollutant	: No

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Flammable liquid
Highly toxic by ingestion
Moderate skin irritant
Severe eye irritant
Carcinogen

TSCA Status : On TSCA Inventory

DSL Status : . All components are on the Canadian DSL list.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIROMENT)
The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil. Fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.

California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Toluene	108-88-3
Benzene	71-43-2

SECTION 16. OTHER INFORMATION

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

6, 8, 10, 12, 14, 16, 64, 68, 91, 112, 306, 1092, 1106, 1500, 1570, 1571, 1651, 1652, 1654, 1700, 1701, 1702, 1710, 1711, 1714, 1726, 1729, 1730, 1732, 1733, 1826, 1848, 1880, 1950

Safety Data Sheet

Material Name: Diesel Fuel, All Types

SDS No. 9909
US GHS

Synonyms: Ultra Low Sulfur Diesel; Low Sulfur Diesel; No. 2 Diesel; Motor Vehicle Diesel Fuel; Non-Road Diesel Fuel; Locomotive/Marine Diesel Fuel

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 3
Skin Corrosion/Irritation – Category 2
Germ Cell Mutagenicity – Category 2
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Causes skin irritation.
Suspected of causing genetic defects.
Suspected of causing cancer.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/mist/vapours/spray.

Response
In case of fire: Use water spray, fog or foam to extinguish.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: 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 or doctor. Do NOT induce vomiting.
IF exposed or concerned: Get medical advice/attention.

Storage
Store in a well-ventilated place. Keep cool.
Keep container tightly closed.
Store locked up.

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

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-34-6	Fuels, diesel, no. 2	100
91-20-3	Naphthalene	<0.1

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

First Aid: Ingestion
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, and other gaseous agents.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuels, diesel, no. 2 (68476-34-6)

ACGIH: 100 mg/m3 TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH:	10 ppm TWA
	15 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA:	10 ppm TWA; 50 mg/m3 TWA
NIOSH:	10 ppm TWA; 50 mg/m3 TWA
	15 ppm STEL; 75 mg/m3 STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear, straw-yellow.	**Odor:**	Mild, petroleum distillate odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	**Vapor Density:**	>1.0
Boiling Point:	320 to 690 °F (160 to 366 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	0.83-0.876 @ 60°F (16°C)
Evaporation Rate:	Slow; varies with conditions	**VOC:**	ND
Percent Volatile:	100%	**Octanol/H2O Coeff.:**	ND
Flash Point:	>125 °F (>52 °C) minimum	**Flash Point Method:**	PMCC
Upper Flammability Limit (UFL):	7.5	**Lower Flammability Limit (LFL):**	0.6
Burning Rate:	ND	**Auto Ignition:**	494°F (257°C)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This material has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

B: Component Carcinogenicity

Fuels, diesel, no. 2 (68476-34-6)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuels, diesel, no. 2 (68476-34-6)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]	

Naphthalene (91-20-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]	
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]	

96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Mobility in Soil
No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information
Shipping Name: Diesel Fuel
NA #: 1993 **Hazard Class:** 3 **Packing Group:** III
Placard:

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Naphthalene (91-20-3)

CERCLA: 100 lb final RQ; 45.4 kg final RQ

SARA Section 311/312 – Hazard Classes

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

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right- To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Fuels, diesel, no. 2	68476-34-6	No	No	No	Yes	No	No
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Fuels, diesel, no. 2	68476-34-6	Yes	DSL	EINECS
Naphthalene	91-20-3	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

NFPA® Hazard Rating

Health	1
Fire	2
Reactivity	0

HMIS® Hazard Rating

Health	1*	Slight
Fire	2	Moderate
Physical	0	Minimal
		*Chronic

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

GHS SAFETY DATA SHEET

Spears® FS-5 One-Step Low VOC Cement for CPVC Fire Sprinkler Systems

Date Revised: MAY 2013
Supersedes: JUN 2011

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Spears® FS-5 One-Step Low VOC Cement for CPVC Fire Sprinkler Systems**

PRODUCT USE: Solvent Cement for CPVC Plastic Pipe

MANUFACTURER: Spears® Manufacturing Company
15853 Olden Street
Sylmar, CA 91342
Tel. 818-364-1611

SUPPLIER:

EMERGENCY: Transportation/Medical issues: Tel. 800-535-5053 or 352-323-3500 (outside of USA) INFOTRAC

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2B				

GHS LABEL:   **OR**  

Signal Word: **Danger**

WHMIS CLASSIFICATION: CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P337+P313: Get medical advice/attention
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	30 - 60
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	2 - 25
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	5 - 15
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	1 - 5

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).

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.

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
Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
			3-Serious
			4-Severe

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 33 °C (90 °F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL:
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	
Acetone	500 ppm	750 ppm	1000 ppm	
Cyclohexanone	20 ppm	50 ppm	50 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:	Red, heavy syrupy liquid		
Odor:	Ether-Like	**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:	0.986 ± 0.01 @ 23 °C ± 2 ° (73 °F ± 3.6 °)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 11.8% based on THF
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	129 mm Hg @ 20 °C (68 °F) based on THF
Auto-ignition Temperature:	321 °C (610 °F) based on THF	**Vapor Density:**	<2 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Heavy bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 490 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Hazardous decomposition products: None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.

Conditions to avoid: Keep away from heat, sparks, open flame and other ignition sources.

Incompatible Materials: Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.

Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.

Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.

Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: None known to humans

Toxicity:

	LD_{50}	LC_{50}
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None Known

Mobility: In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 490 g/l.

Degradability: 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 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:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant
Symbols: F, Xi
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.

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

SECTION 16 - OTHER INFORMATION

Specification Information:
Department issuing data sheet: Environmental Health & Safety
E-mail address: EHSInfo@SpearsMfg.net

All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).

Training necessary: Yes, training in practices and procedures contained in product literature.
Reissue date / reason for reissue: 05-01-2013 / Technical Update
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.

MATERIAL SAFETY DATA SHEET
Thread Seal Tape with PTFE (Industrial)

SECTION I – PRODUCT INFORMATION

Distributor's name: Allied Rubber & Gasket Company
2610 Commerce Way
Vista, Ca 92081
In case of emergency: Contact your local poison control center
For information call: (800) 854-1015
Date prepared: 1/23/2013
Product name: Tuf-Glide™ Thread Seal Tape with PTFE

SECTION II – HAZARDOUS INGREDIENTS

Hazardous Components: Polytetrafluroethylene (PTFE) (Specific Chemical Identity)
OSHA PEL: Not Applicable
ACHIH TLV: Not Applicable
%: 100%
CAS No.: 9002-84

PTFE tape, as such, is not a hazardous material. It is a processed solid polymer.

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling point:	Not Applicable	**Vapor pressure:**	Not Applicable
Vapor Density:	Not Applicable	**Solubility in Water:**	Insoluble
Appearance & odor:	White & None	**Specific gravity (H2O = 1):**	2.1 – 2.2
Melting point:	-341ºC (642ºF)	**Evaporation Rate:**	Not Applicable

SECTION IV – FIRE AND EXPLOSTION DATA

Flash Point:	Not Applicable	**Flammable Limits:**	Not Applicable
LEL:	Not Applicable	**UEL:**	Not Applicable

Extinguishing Media: Not Applicable; Use media suitable for surrounding fire
Specific Fire Fighting Procedures: Self contained breathing apparatus with full face piece and protective clothing if involved with other materials
Unusual Fire & Explosion hazards: Product will emit toxic fumes at high temperatures:
Above 800ºF – Tetrafluroethylene
Above 825ºF – Hexafluropropylene
Above 885ºF – Perfluroisbutylene
Above 930ºF – Carbon Fluoride

SECTION V– REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Heating above 750ºF for prolonged periods
Instability (materials to avoid): Molten alkali metals; interhalogen compounds
Hazardous Decomposition or See section 4
Hazardous Polymerization: Will not occur
Conditions to avoid: None

Routes of Entry:
Inhalation? No toxic effects
Skin? Non-irritating/absorbing
Ingestion? PTFE shown to be inert when ingested by rats

Health Hazards
Acute: Flu like symptoms
Chronic: Could be fatal

Carcinogenicity:
NTP? No
ARC monographs? No
OSHA regulated? No

Signs & Symptoms of Exposure: Flu like fever
Medical Conditions Generally Aggravated: Respiratory Inflammation

Emergency & First Aid Procedures: Move to fresh air, refer to physician

SECTION VI – PRECAUTIONS FOR SAFE HANDLING & USE

Steps to be taken in case material is released or Spilled: Sweep up to prevent spillage on tape

Waste disposal method: No unusual precautions

Precautions to be taken in handling & storage: No unusual precautions

Other precautions: No unusual precautions

SECTION VII – CONTROL MEASURES

Respiratory Protection: Not Applicable except in Section 4

Ventilation: Not Applicable
Protective Gloves: Not Applicable
Eye Protection: Not Applicable
Other Protective Clothing or Equipment: Not Applicable
Work/Hygienic Practices: No smoking while handling material; Clean spills immediately

Please note: If you repackage or otherwise redistribute this product to industrial customers, a notice similar to this one should be sent to that customer.

Disclaimer

The information contained herein is accurate and reliable as of the date issued to the best of the manufacturer's knowledge. **ARGCO** *doesn't warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising from the use thereof. It is the user's responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.*

END OF MATERIAL SAFETY DATA SHEET

Safety Data Sheet

1 - Identification

Product Name: WD-40 Multi-Use Product Aerosol ***NOT FOR SALE IN CALIFORNIA*** **Product Use: Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion** **Restrictions on Use: None identified** **SDS Date Of Preparation: 07/20/2014**	**Manufacturer: WD-40 Company** **Address: 1061 Cudahy Place (92110)** **P.O. Box 80607** **San Diego, California, USA** **92138 –0607** **Telephone:** **Emergency only: 1-888-324-7596 (PROSAR)** **Information: 1-888-324-7596** **Chemical Spills: 1-800-424-9300 (Chemtrec)** **1-703-527-3887 (International Calls)**

2 – Hazards Identification

Hazcom 2012/GHS Classification:
Flammable Aerosol Category 1
Gas Under Pressure: Compressed Gas
Aspiration Toxicity Category 1

Note: This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission regulations which take precedence over OSHA Hazard Communication labeling. The actual container label will not include the label elements below. The labeling below applies to industrial/professional products.

Label Elements:

DANGER!
Extremely Flammable Aerosol.
Contains gas under pressure; may explode if heated.
May be fatal if swallowed and enters airways.

Prevention
Keep away from heat, sparks, open flames, hot surfaces – No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.

Response
IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage
Store locked up.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place.

Disposal
Dispose of contents and container in accordance with local and national regulations.

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	US Hazcom 2012/ GHS Classification
Aliphatic Hydrocarbon	64742-47-8	45-50	Flammable Liquid Category 3

			Aspiration Toxicity Category 1
Petroleum Base Oil	64742-56-9 64742-65-0 64742-53-6 64742-54-7 64742-71-8	<25	Not Hazardous
LVP Aliphatic Hydrocarbon	64742-47-8	12-18	Aspiration Toxicity Category 1
Carbon Dioxide	124-38-9	2-3	Simple Asphyxiant Gas Under Pressure, Compressed Gas
Non-Hazardous Ingredients	Mixture	<10	Not Hazardous

Note: The exact percentages are a trade secret.

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.
Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.
Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.
Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.
Signs and Symptoms of Exposure: May cause eye and respiratory irritation. Inhalation may cause coughing, headache and dizziness. Skin contact may cause drying of the skin.
Indication of Immediate Medical Attention/Special Treatment Needed: Immediate medical attention is needed for ingestion.

5 – Fire Fighting Measures

Suitable (and unsuitable) Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.
Specific Hazards Arising from the Chemical: Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Combustion will produce oxides of carbon and hydrocarbons.
Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.
Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

Conditions for Safe Storage: Store in a cool, well-ventilated area, away from incompatible materials Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol. Store away from oxidizers.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m3 TWA, 10 mg/m3 STEL ACGIH TLV 5 mg/m3 TWA OSHA PEL
LVP Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA (OSHA/ACGIH), 30,000 ppm STEL (ACGIH)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product
Appropriate Engineering Controls: Use in a well-ventilated area.
Personal Protection:
Eye Protection: Avoid eye contact. Always spray away from your face.
Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.
Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended
Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.
Personal Protection:
Eye Protection: Safety goggles recommended where eye contact is possible.
Skin Protection: Wear chemical resistant gloves.
Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.
Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Appearance:	Light amber liquid	Flammable Limits: (Solvent Portion)	LEL: 0.6% UEL: 8%
Odor:	Mild petroleum odor	Vapor Pressure:	95-115 PSI @ 70°F
Odor Threshold:	Not established	Vapor Density:	Greater than 1 (air=1)
pH:	Not Applicable	Relative Density:	0.8 – 0.82 @ 60°F
Melting/Freezing Point	Not established	Solubilities:	Insoluble in water
Boiling Point/Range:	361 - 369°F (183 - 187°C)	Partition Coefficient; n-octanol/water:	Not established
Flash Point:	122°F (49°C) Tag Closed Cup (concentrate)	Autoignition Temperature:	Not established
Evaporation Rate:	Not established	Decomposition Temperature:	Not established
Flammability (solid, gas)	Flammable Aerosol	Viscosity:	2.79-2.96 cSt @ 100°F
VOC:	412 grams/liter (49.5%)	Pour Point:	-63°C (-81.4°F) ASTM D-97

10 – Stability and Reactivity

Reactivity: Not reactive under normal conditions
Chemical Stability: Stable

Possibility of Hazardous Reactions: May react with strong oxidizers generating heat.
Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.
Incompatible Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Symptoms of Overexposure:
Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.
Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.
Eye Contact: Contact may be irritating to eyes. May cause redness and tearing.
Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
Chronic Effects: None expected.
Carcinogen Status: None of the components are listed as a carcinogen or suspect carcinogen by IARC, NTP, ACGIH or OSHA.
Reproductive Toxicity: None of the components is considered a reproductive hazard.

Numerical Measures of Toxicity:
The oral toxicity of this product is estimated to be greater than 5,000 mg/kg and the dermal toxicity greater than 2,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

12 – Ecological Information

Ecotoxicity: No specific aquatic toxicity data is currently available, however components of this product are not expected to be harmful to aquatic organisms
Persistence and Degradability: Component are readily biodegradable.
Bioaccumulative Potential: Bioaccumulation is not expected based on an assessment of the ingredients.
Mobility in Soil: No data available
Other Adverse Effects: None known

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Do not puncture or incinerate containers, even empty. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information_

DOT Surface Shipping Description:
UN1950, Aerosols, 2.1 Ltd. Qty (Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)
IMDG Shipping Description: Un1950, Aerosols, 2.1, LTD QTY
ICAO Shipping Description: UN1950, Aerosols, flammable, 2.1 NOTE: WD-40 does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

U.S. Federal Regulations:
CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many

states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
SARA TITLE III:
Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure
Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None
Section 302 Extremely Hazardous Substances (TPQ): None
EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.
VOC Regulations: This product complies with the consumer product VOC limits of the US EPA and states adopting the OTC VOC rules but does not comply with CARB.
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product does not contain chemicals regulated under California Proposition 65.
Canadian Environmental Protection Act: One of the components is listed on the NDSL. All of the other ingredients are listed on the Canadian Domestic Substances List or exempt from notification.
Canadian WHMIS Classification: Class A (Compressed gas), Class B-5 (Flammable Aerosol)
This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16 – Other Information:

HMIS Hazard Rating:
Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Reactivity – 0 (minimal hazard)

Revision Date: July 20, 2014 Supersedes: May 23, 2014

Revision Summary: Convert to Hazcom 2012. Changes in all sections.

Prepared by: Industrial Health & Safety Consultants, Inc. Shelton, CT, USA

APPROVED By: I. Kowalski Regulatory Affairs Dept.

5049000/No.0015205

Material Safety Data Sheet
May be used to comply with
OSHA's Hazard Communication Standard 29 CFR 1910.1200.
This standard must be consulted for specific requirements

IDENTITY (As used on label and list)

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Lithium-ion Batteries (Rechargeable)

Section I

Manufacturer's Name Milwaukee Electric Tool Corporation	Emergency Telephone Number 1-800-424-9300 (U.S.) or 1-703-527-3887 (International)
Address (Number, Street) 13135 West Lisbon Road	Contact Telephone Number for Technical Information 262-781-3600 or 1-800-729-3878 (1-800-SAWDUST)
(City, State, and Zip Code) Brookfield, Wisconsin 53005	Date Prepared October, 2006

Section II - Hazardous Ingredients/Identity Information

Hazardous Components [Specific Chemical Identity, Common name (s)]

Ingredient	% by Weight	OSHA Reg. Y/N	CAS #	OSHA PEL	ACGIH TLV	California Prop 65 Reg. Y/N	IARC/NTP Y/N
Aluminum Foil	0.1 – 1w/w	N	7429-90-5	N/A	N/A	N	N
Biphenyl (BP)	0.1-0.3 w/w	Y	92-52-4	1.0 mg/m3	1.0 mg/m3	N	Y
Copper Foil	0.1- 1 w/w	N	740-50-8	N/A	N/A	N	N
Linear & Cyclic Carbonate solvents (See 'Other Information")	5-17w/w	N	N/A	N/A	N/A	N	N
Graphite Powder	10-30 w/w	Y	7440-44-0	2.0 mg/m3 (as dust)	2.0 mg/m3 (as dust)	N	Y
Lithium Manganite (Spinel) ($LiMn_2O_4$)	10-30 w/w	N	12057-17-9	5.0 mg/m3 (as dust)	0.2 mg/m3 (as dust)	N	N
Lithium Hexaflurophosphate (LPF_6)	1-5 w/w	N	21324-40-3	2.5 mg/m3 (as dust)	2.5 mg/m3 (as dust)	N	N
Polyvynlidene (PVDF)	0.1-1 w/w	N	24937-79-9	Non Established	Non Established	N	N
Steel, Nickel and Inert Polymer	Balance	N	N/A	N/A	N/A	N	N

DOT Hazard Classification: Lithium-ion batteries containing not more than 8.0 grams of equivalent lithium content (ELC) are excepted from full UN3090 Class 9 regulation per HMR 49 CFR 173.185(b) "Exceptions". Lithium-ion batteries containing not more than 25.0 grams ELC are excepted from full UN3090 Class 9 regulation per HMR 49 CFR 173.185(c) "Additional exceptions".

SARA Title III Section 313: This product does not contain regulated levels of any toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR part 372.

HMIS® Rating Numbers	Health	Flammability	Reactivity	Personal Protection
	N/A	N/A	N/A	X

Hazard Ratings:	0 = Minimum hazard	1 = Slight hazard	2 = Moderate hazard	3 = Serious hazard	4 = Severe hazard
	A = Goggles	B = Goggles + Gloves	C = Face Shield, Gloves + Apron	X = Special, See sections VII & VIII of this sheet	

Section III - Physical/Chemical Characteristics

Boiling Point N/A	Specific Gravity (H_2O=1) 1.5 – 2.0
Vapor Pressure (mm/Hg.) N/A	Melting Point N/A
Vapor Density (Air=1) N/A	Evaporation Rate N/A
Solubility in Water Insoluble	
Appearance and Odor Solid article, odorless	

Legend:
Y - Yes
N - No
N/A - Not Applicable

Revision Date October 2006

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Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
None	Organic components will burn if cell is incinerated. Combustion of cell contents will cause evolution of Hydrogen Fluoride.	None	None

Extinguishing Media

Water spray, carbon dioxide, dry chemical powder or appropriate foam. Use agent appropriate for surrounding materials.

Special Fire Fighting Procedures

Organic components will burn if incinerated. Combustion of cell contents will cause evolution of Hydrogen Fluoride. In case of fire in an adjacent area, use water, CO2, or dry chemical extinguishers if cells are packed in their original containers since the fuel of the fire is basically paper products.

Unusual Fire and Explosion Hazards

Hydrofluoric Acid Exposure During Fire Fighting: This information is given for the use of professional fire fighters responding to a warehouse fire where fire from other materials may incinerate batteries. This section is provided solely in case of exposure, during fire fighting, to the combustion by-products.

Hydrofluoric acid is extremely corrosive. Contact with hydrogen fluoride fumes is to be avoided. Permissible exposure limit is 3ppm. In case of contact with hydrogen fluoride fumes, immediately leave the area and seek first aid **and** emergency medical attention. Symptoms may have delayed onset. Fluoride ions penetrate skin readily causing destruction of deep tissue layers even bone. Fluoride interferes with nerve impulse conduction causing severe pain or absence of sensations. Immediately flush eyes or skin with water for at least 20 minutes to neutralize the acidity and remove some fluoride. Remove and destroy all contaminated clothing and permeable personal possessions. Before re-use, impermeable possessions should be soaked in benzalkonium chloride after washing. Following flushing of the affected areas, an iced aqueous solution of benzalkonium chloride or 2.5% calcium gluconate gel should be applied to react with the fluoride ion. Compresses and wraps may be used for areas where immersion is not practical. Medicated dressing should be changed every 2 minutes. Exposure to hydrofluoric acid fumes sufficient to cause pain requires immediate hospitalization for monitoring for pulmonary edema.

Section V - Reactivity Data

Stability	Unstable		Conditions to avoid:
	Stable	X	Do not crush, puncture, incinerate, immerse in water or heat over 100°C. Steel casing slowly dissolves in strong mineral acids.

Incompatibility *(Material to avoid)*:

Water, heat and strong acids

Hazardous Decomposition or Byproducts

Hydrogen Fluoride, Phosphorus Oxides, Carbon Monoxide, Carbon Dioxide, Lithium Hydroxide, Manganese Oxides, Aluminum Oxide, possible fluoro-compounds, Carbon soot

Hazardous	May Occur		Conditions to avoid: Hazardous polymerization will not occur. Spontaneous decomposition will not occur at normal temperature.
Polymerization	Stable	X	

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
During normal use	No	No	No

Health Hazards *(Acute and Chronic)*

No effect noticed in routine handling of product. Risk of exposure occurs only if the battery is mechanically or electrically abused can irritate skin and eyes.

Signs and Symptoms of Exposure:

No effect noticed in routine handling of product. If battery is mechanically or electrically abused, exposure to skin may cause irritation; may irritate eyes.

Medical Conditions Generally Aggravated by Exposure:

No effect noticed in routine handling of product. An acute exposure will not generally aggravate any medical condition. Ingestion is not likely, given the physical size and state of the cell.

Emergency and First Aid Procedures

In case of skin contact with contents of battery, flush immediately with water. For eye contact, flush with copious amounts of water for 15 minutes. If irritation persists, get medical help.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released / Spilled

Transport container outdoors. Hold burned cells and fire cleanup solids for disposal as potential hazardous waste.

Legend:
Y - Yes
N - No
N/A - Not Applicable

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Unburned cells are not hazardous waste. A fire with over 100 kg of cells burnt will likely require reporting to environmental officials. Always consult and obey all international, federal and local environmental laws.

Waste Disposal Method

Dispose in accordance with appropriate regulations. Always consult and obey all international, federal, provincial/state and local hazardous waste disposal laws. Some jurisdictions require recycling of this spent product.

Precautions to Be Taken in Handling and Storing

Store in a cool, dry place away from sparks and flame. Keep below 125°C. Keep above -60°C. Charge between 0°C and 45°C. Use only approved charging equipment. Do not disassemble battery or battery pack. Do not puncture, crush or dispose of in fire.

Other Precautions

Keep away from heat and open flames. Store in a cool, dry place.

Section VIII - Control Measures

Respiratory Protection *(Specify Type)*

Not necessary under conditions of normal use

	Mechanical	Other
	Not necessary under conditions of normal use	Not necessary under conditions of normal use

Protective Gloves	Eye Protection
Not necessary under conditions of normal use	Not necessary under conditions of normal use

Other Protective Clothing or Equipment:

Not necessary under conditions of normal use. If handling large containers of cells wear steel-toed footwear.

Work/Hygienic Practices

Use standard industrial clothing in normal use.

Section IX – Recycling and Disposal

Battery recycling is encouraged. Lithium ion batteries are safe for disposal in the normal municipal waste stream since they are not defined by the federal government as hazardous waste. However, Lithium ion batteries are recyclable.

DO NOT INCINERATE or subject battery cells to temperatures in excess of 212°F.

Section X – Transportation

Milwaukee rechargeable Lithium-ion batteries and component cells have been tested to, and are compliant with, transportation test requirements as described in the UN Manual of Tests & Criteria, Part III, Sub-section 38.3.

All Lithium-ion batteries must be packaged and transported in accordance with relevant requirements of the following U.S. and international regulations:

- U.S. DOT HMR: 49 CFR 173.185;
- Canada TDG: Schedule 2, Special Provision 34;
- Mexican NOM-002-SCT: Special Provision 188, 230, or 310, as applicable;
- ICAO Technical Instructions: Special Provision A45, A88, or A99, as applicable;
- IATA Dangerous Goods Regulations: Special Provision A45, A88, or A99, as applicable;
- IMDG Code: Special Provision 188, 230, or 310, as applicable;
- European ADR: Special Provision 188, 230, or 310, as applicable;
- UN Model Regulations on the Transport of Dangerous Goods: Special Provision 188, 230, or 310, as applicable.

Equivalent Lithium Content (ELC) calculations for Lithium-ion cells and batteries:

1. ELC of a component cell, in grams, is equal to the rated Amp-hours multiplied by 0.3.
   Example: 3.0 Ah x 0.3 = 0.9 g ELC per cell
2. ELC of a battery, in grams, is equal to cell ELC multiplied by the total number of cells contained within the battery.
   Example: 0.9 g ELC x 5 cells = 4.5 g ELC per (5-cell) battery

Legend:
Y - Yes
N - No
N/A - Not Applicable

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