WD Service Company
780 Creek Road
PO Box 147
Bellmawr, NJ 08099
856-931-6100
www.wdserviceco.com

SAFETY DATA SHEET

Section 1. Identification

Product Name:	**Ammonium Hydroxide – 10%-30%**
Synonyms:	Ammonium Hydroxide Solutions, Aqua Ammonia, Aqua Ammonia Solutions, Ammonia Solutions, Ammonia Aqueous, Ammonia Water
CAS REGISTRY NO**:**	1336-21-6
Supplier:	WD Service Company
Corporate Emergency Telephone Number:	**800-366-9326**
24 Hour Emergency Telephone Number:	**Chemtrec: 800-424-9300**
Recommended Use:	Various Industrial

Section 2. Hazard(s) Identification

Hazard: Acute Toxicity, Corrosive, Acute Aquatic Toxicity

Classification: Acute Toxicity, Inhalation (Category 4) Note: (1 - Most Severe / 4 - Least Severe)
Acute Toxicity, Oral (Category 4)
Skin Corrosion (Category 1B)
Serious Eye Damage / Irritation (Category 1)
Acute Aquatic Toxicity (Category 1)

Pictogram:

Signal word: **Danger**

Hazard statements:
Harmful if inhaled.
Harmful if swallowed.
Causes severe skin burns and eye damage.
Very toxic to aquatic life.

Precautionary statements:
Avoid breathing mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product.
Wear protective gloves, protective clothing, eye protection, face protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor/physician and seek medical attention for severe exposure or if symptoms persist. Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures).
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a poison center/doctor/physician. See supplemental first aid instructions in Section 4 (First Aid Measures).
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower (continued) (minimum of 20 minutes). See supplemental first aid instructions in Section 4 (First Aid Measures).
IF IN EYES: Immediately call a doctor/physician and seek medical attention. Rinse continuously with water for several minutes (minimum of 20 minutes). Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures). Wash contaminated clothing before reuse.
Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/container in accordance with local, regional, national regulations as applicable. See section 13 (Disposal Considerations).

NFPA Rating:

HMIS Classification:

AMMONIUM HYDROXIDE	
HEALTH	3
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	H

NFPA Numbering System:
0 = Least Hazardous / 4 = Most Hazardous

HMIS Hazard Index:
0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

Section 3. Composition / Information on Ingredients

CHEMICAL NAME: Ammonium Hydroxide (Ammonium Hydroxide Solutions 10% to 30%)
CAS REGISTRY NO: 1336-21-6
SYNONYMS: Ammonium Hydroxide Solutions, Aqua Ammonia, Aqua Ammonia Solutions, Ammonia Solutions, Ammonia Aqueous, Ammonia Water.
CHEMICAL FAMILY: Inorganic nitrogen compounds.
COMPOSITION: Solutions: Anhydrous Ammonia (10% to 30%); Water (90% to 70%); Density: 16° Baume to 26° Baume.

Ammonia, Anhydrous: CAS # 7664-41-7; Water: CAS# 7732-18-5

Section 4. First Aid Measures

IF INHALED: Immediately remove person to fresh air and keep comfortable for breathing. In case of severe exposure or if irritation persists, breathing difficulties or respiratory symptoms arise, seek medical attention. If not breathing, administer artificial respiration. If trained to do so, administer supplemental oxygen, if required.
IF ON SKIN (or hair): Immediately take off all contaminated clothing. Flush skin with copious amounts of tepid water for a minimum of 20 minutes. Do not rub or apply topical, occlusive compounds, such as ointments, certain creams, etc., on affected area. For severe exposure or if irritation persists, seek medical attention. Wash contaminated clothing before reuse.
IF IN EYES: Immediately rinse continuously with copious amounts of tepid water for a minimum of 20 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing. Seek medical attention.
IF SWALLOWED: Rinse mouth. Do not induce vomiting. If conscious, give large amounts of water to drink. May drink orange juice, citrus juice or diluted vinegar (1:4) to counteract ammonia. If unconscious, do not give anything by mouth. Seek medical attention.

***NOTE TO PHYSICIAN*:** Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilation actions, including oxygen, may warrant consideration.

Section 5. Fire Fighting Measures

EXTINGUISHING MEDIA:
Water Spray, Water Fog for escaping ammonia gas.

SPECIAL FIRE FIGHTING PROCEDURES:
Must wear protective clothing and a positive pressure SCBA.
Stop flow of liquid if possible.
Use water spray to keep fire-exposed containers cool.
If a portable container (such as a drum, Intermediate Bulk Container [IBC] or trailer) can be moved from the fire area without risk to the individual, do so to prevent the pressure relief valve from discharging or the container from failing.
Stay upwind when containers are threatened.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
When heated, product will give off ammonia vapor, which is a strong irritant to the eye, skin and respiratory tract.
Outdoors, ammonia is not generally a fire hazard. Indoors, in confined areas, ammonia vapors may be a fire hazard, especially if oil or other combustible materials are present.
Combustion may form toxic nitrogen oxides (NOx).

Section 6. Accidental Release Measures

GENERAL:
Only properly trained and equipped persons should respond to an ammonium hydroxide release.
Wear eye, hand and respiratory protection and protective clothing; see Section 8, Exposure Controls / Personal Protection.
Stop source of leak if possible, provided it can be done in a safe manner.
Leave the area of a spill by moving laterally and upwind.
Isolate the affected area. Non-responders should evacuate the area, or shelter in place.

SPECIFIC STEPS TO BE TAKEN:
For a hazardous material release response, Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).
Stay upwind and use water spray downwind of container to absorb the evolved gas.
Contain spill and runoff from entering drains, sewers, streams, lakes and water systems by utilizing methods such as diking, containment, and absorption.

Section 7. Handling and Storage

SPECIAL PRECAUTIONS:
Only trained persons should handle ammonium hydroxide.
Store in cool, dry and well-ventilated areas, with containers tightly closed.
Keep out of direct sunlight and away from heat sources.
Do not use any non-ferrous metals such as copper, brass, bronze, aluminum, tin, zinc or galvanized metals.
Protect containers from physical damage.
Closed storage tanks should be provided with safety relief valves and vacuum breakers as necessary.

VENTILATION:
Local exhaust should be sufficient to keep ammonia vapor below applicable exposure standards.

WORKPLACE PROTECTIVE EQUIPMENT:
Protective equipment should be stored near, but outside of ammonium hydroxide area. Water for first aid, such as an eyewash station and safety shower should be kept available in the immediate vicinity.

Section 8. Exposure Controls / Personal Protection

EXPOSURE LIMITS FOR AMMONIA: (Vapor)

OSHA	50 ppm,	35 mg / m^3 PEL	8 hour TWA
NIOSH	35 ppm,	27 mg / m^3 STEL	15 minutes
	25 ppm,	18 mg / m^3 REL	10 hour TWA
	300 ppm,	IDLH	
ACGIH	25 ppm,	18 mg / m^3 TLV	8 hour TWA
	35 ppm,	27 mg / m^3 STEL	15 minutes

PROTECTIVE EQUIPMENT:
EYE/FACE PROTECTION: Chemical splash goggles should be worn when handling ammonium hydroxide (aqua ammonia). A face shield can be worn over chemical splash goggles as additional protection. Do not wear contact lenses when handling ammonium hydroxide. Refer to 29 CFR 1910.133 for OSHA eye protection requirements.

SKIN PROTECTION: Ammonia impervious gloves and clothing (such as neoprene, butyl and Teflon) should be worn to prevent contact during normal operations, such as loading/unloading, transfers, and handling small spills.
Chemical boots can be worn as additional protection.

RESPIRATORY PROTECTION: Respiratory protection approved by NIOSH for ammonia must be used when applicable safety and health exposure limits are exceeded. For escape in emergencies, NIOSH approved respiratory protection should be used, such as a full-face gas mask and canisters/cartridges approved for ammonia or SCBA. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).
Refer to 29 CFR 1910.134 and ANSI: Z88.2 for OSHA respiratory protection requirements.

VENTILATION: Local exhaust should be sufficient to keep ammonia vapor below applicable exposure standards.

FOR A HAZARDOUS MATERIAL RELEASE RESPONSE: Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

Section 9. Physical and Chemical Properties

APPEARANCE AND ODOR: Colorless liquid with a pungent odor.
ODOR THRESHOLD: 2 - 5 ppm
SOLUBILITY IN WATER: Miscible
SPECIFIC GRAVITY OF VAPOR (air = 1): 0.596 at 32 ºF
WEIGHT (per gallon): 7.46 pounds to 7.99 pounds
EVAPORATION RATE (water = 1): Similar
PH: 13+
FORMULA: NH_4OH ($NH_3 + H_2O$)
MOLECULAR WEIGHT: 35.05 (NH_4OH)
VISCOSITY: 1.7 40 ºF (26% solution)
PARTITION COEFFIENT: Not applicable.
DECOMPOSITION TEMPERATURE: Not applicable.
FLAMMABILITY:
FLASHPOINT: Not applicable.
FLAMMABLE LIMITS OF AMMONIA VAPOR IN AIR: LEL/UEL 16% to 25% (listed in the *NIOSH Pocket Guide to Chemical Hazards* 15% to 28%).
AUTO-IGNITION TEMPERATURE (ammonia vapors): 1,204 °F (If catalyzed). 1,570 °F (If un-catalyzed).

SOLUTION-SPECIFIC PHYSICAL DATA:

	20.5° Baume	**25° Baume**	**26° Baume**
AMMONIA PERCENTAGE:	18.5% to 19.5%	26.5% to 27.5%	29.4% to 30.0%
WATER PERCENTAGE:	81.5% to 80.5%	73.5% to 72.5%	70.6 % to 70.0%
SPECIFIC GRAVITY (water = 1):	0.9309 to 0.9278 at 60 °F	0.9060 to 0.9030 at 60 °F	0.8974 to 0.8957 at 60 °F
APPROXIMATE BOILING POINT:	120 °F at 14.7 psia	88 °F at 14.7 psia	84.9 °F at 14.7 psia
VAPOR PRESSURE:	3.9 psia at 60 °F	6.9 psia at 60 °F	9.1 psia at 60 °F
APPROXIMATE FREEZING POINT:	-31 °F	-89 °F	-110 °F

Section 10. Stability and Reactivity

REACTIVITY:
Avoid ammonium hydroxide contact with chemicals such as mercury, chlorine, iodine, bromine, silver oxide or hypochlorites; they can form explosive compounds. Ammonia reacts with strong oxidizers, acids, halogens (including chlorine bleach), and salts of silver, zinc, copper, and other heavy metals.

CHEMICAL STABILITY:
Stable under normal ambient conditions of temperature and pressure.
Will not polymerize.

POSSIBILITY OF HAZARDOUS REACTIONS:
Ammonium hydroxide will react exothermically with acids.
Ammonia vapors are released when heated.

CONDITIONS TO AVOID:
Avoid ammonium hydroxide contact with chlorine, which forms a chloramine gas, which is a primary skin irritant and sensitizer.

INCOMPATIBLE MATERIALS:
Ammonium hydroxide has a corrosive reaction with galvanized surfaces, copper, brass, bronze, aluminum alloys, mercury, gold and silver.

HAZARDOUS DECOMPOSITION PRODUCTS:
Ammonia will be liberated if heated. Hydrogen will be released on heating ammonia above 450 ºC (842 ºF).

Section 11. Toxicological Information

Potential health effects: Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. May cause severe chemical burns to the eyes, lungs and skin. Skin and respiratory related diseases could be aggravated by exposure. The extent of injury produced by exposure to ammonia depends on the duration of the exposure, the concentration of the liquid or vapor and the depth of inhalation.

Exposure Routes: Inhalation (vapors), skin and/or eye contact (vapors, liquid), ingestion (liquid).

Symptoms of acute exposure:

Inhalation: Acute exposure to vapor may result in severe irritation of the respiratory tract. May cause dyspnea (breathing difficulty), wheezing, chest pain, bronchospasm, pink frothy sputum, pulmonary edema or respiratory arrest. Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis.

Eyes: Vapors may cause irritation. Effects of direct contact may range from irritation and lacrimation (tearing) to severe corrosive injury and blindness.

Skin: Irritation, corrosive burns, blister formation (vesiculation) may result. Contact with liquid may produce caustic burns.

Ingestion: May cause corrosion to the mouth, throat, esophagus and stomach with perforation and peritonitis. Extreme exposure may result in death from spasm, inflammation or edema.

Chronic Exposure: Repeated exposure to ammonia may cause chronic irritation of the eyes and respiratory tract.

Toxicity:

LC_{50} - 5131 mg/m^3 (7338 ppm) to 11,592 mg/m^3 (16,600 ppm), 60 minute exposure, Rat.
LD_{50} - 350 mg / kg (Oral / Rat).

Not listed in the National Toxicology Program (NTP).
Not recognized by OSHA as a carcinogen.
Not listed as a carcinogen by the International Agency for Research on Cancer (IARC monograph).
Germ cell mutagenicity information is not available. Reproductive toxicity information is not available.

Section 12. Ecological Information

Ammonia is harmful to aquatic life at very low concentrations. Notify local health and wildlife officials and operators of any nearby water intakes upon contamination of surface water.

Toxicity:

Terrestrial plants: LOEC = 3-250 ppm NH_3.
Aquatic plants: LOEC = 0.5-500 mg NH_3-N/L.
Acute toxicity to invertebrates: 48 h LC50 = 2.94 mg un-ionized NH3-N/L.
Chronic toxicity to invertebrates: NOEC = 0.163- 0.42 mg un-ionized NH3/L.
Acute toxicity to fish: 96-h: LC50= 0.09 – 3.51 mg un-ionized NH_3/L.
Chronic toxicity to fish: NOEC=0.025-1.2 mg un-ionized NH3/L.

Environmental Fate Information: Ammonia dissipates relatively quickly in ambient air and rapidly returns to the soil via combination with sulfate ions or washout by rainfall. Ammonia strongly adsorbs to soil, sediment particles and colloids in water under aerobic conditions. Biodegradation of ammonia to nitrate occurs in water under aerobic conditions resulting in a biological oxygen demand (BOD).

Persistence/Degradability: Biodegradable in soil. Ozonation in the air. Soluble in water.
Bioaccumulative Potential: Not applicable.
Mobility in Soil: No additional information available.
Other Adverse Effects: No additional information available.

Section 13. Disposal Considerations

Dispose of unused contents/container in accordance with local/regional/national regulations as applicable.
Listed as hazardous substance under Clean Water Act (CWA) (40 CFR 116.4 and 40 CFR 117.3).
Classified as hazardous waste under Resource Conservation and Recovery Act (RCRA) (40 CFR 261.22 Corrosive #D002) if disposed of in original form. Suitably diluted product may be utilized as fertilizer on agricultural land.
For hazardous waste regulations information call the RCRA Hotline (800) 424-9346, or visit the US EPA website.

Section 14. Transport Information

US Department of Transportation

HAZARD CLASS: 8 (Corrosive Material)

PROPER SHIPPING DESCRIPTION: UN2672, Ammonia Solutions, 8, PG III, RQ

PLACARD: Corrosive

IDENTIFICATION NUMBER: UN 2672

ENVIRONMENTAL HAZARDS:
IMDG, Known Marine Pollutant: No
United Nations Model Regulations, Environmentally Hazardous: No

Section 15. Regulatory Information

The material is subject to the reporting requirements of Section 304, Section 312 and Section 313, Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR 372.
Under Section 313, as of June 30, 1995, this material is reportable with the following qualifications: 10% of total aqueous ammonia is reportable as Ammonia (CAS #: 7664-41-7) under this listing.

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Section 103, any environmental release of this chemical equal to or over the reportable quantity of 1,000 pounds (as NH_4OH) must be reported promptly to the National Response Center, Washington, D.C. (1-800-424-8802).

Toxic Substances Control Act (TSCA): This material and its components are listed in the TSCA Inventory.

EPA Hazard Categories – Immediate: Yes; Delayed: No; Fire: No; Sudden Release: No; Reactive: No

Clean Air Act – Section 112(r): Material is listed under EPA's Risk Management Program (RMP), 40 CFR Part 68 at concentrations greater than 20% and storage/process amounts greater than the Threshold Quantity (TQ) of 20,000 pounds of contained ammonia (CAS #: 7664-41-7).

The chemical is listed under Department of Homeland Security regulation 6 CFR Part 27, Chemical Facility Anti-Terrorism Standards at storage / process amounts greater than the threshold quantity of 20,000 pounds (ammonia concentration 20% or greater).

OSHA (Occupational Safety & Health Administration): This material is considered to be hazardous as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. This material is subject to Process Safety Management requirements of 29 CFR 1910.119 if maintained on-site, including storage and process, in quantities of 15,000 pounds or greater (>44% ammonia by weight).

Section 16. Other Information

Preparation Information: Revision Date May 1, 2015 Prepared by: HJS
Replaces all previously dated versions.

Revisions to this Safety Data Sheet have been created to comply with the requirements of the OSHA Hazard Communication Final Rule issued in 2012 (HazCom 2012).

Acronyms:
ACGIH: American Conference of Governmental Industrial Hygienists
ANSI: American National Standards Institute
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
DHS: Department of Homeland Security
DOT: Department of Transportation
EPA: Environmental Protection Agency
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IDLH: Immediately Dangerous to Life or Health
IMDG: International Maritime Dangerous Goods
NFPA: National Fire Protection Association
NIOSH: National Institute for Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
PPM: Parts Per Million
RCRA: Resource Conservation and Recovery Act
REL: Recommended Exposure Limit
SCBA: Self Contained Breathing Apparatus
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TWA: Time Weighted Average

Disclaimer:
The information, data, and recommendations in this safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. To the best of our knowledge, the information, data, and recommendations set forth herein are believed to be accurate. We make no warranties, either expressed or implied, with respect thereto and assume no liability in connection with any use of such information, data, and recommendations. Judgements as to the suitability of the information contained herein for the party's own use or purposes are solely the responsibility of that party. Any party handling, transferring, transporting, storing, applying or otherwise using this product should review thoroughly all applicable laws, rules, regulations, standards and good engineering practices. Such thorough review should occur before the party handles, transfers, transports, stores, applies or otherwise uses this product.

BRITEPLUS® ALLOY
MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: BritePlus® Alloy

NOTE: In the form in which it is sold, this product is not regulated in Canada. This Material Safety Data Sheet is provided for information purposes only.

Manufacturer:

Various
(Please Contact Supplier for Further Information)

Supplier:
Imperial Alloys Corporation
1031 East 103rd Street
Chicago, IL 60628
United States
773-264-5900

MSDS Preparer:
Imperial Zinc Corporation
1031 East 103rd Street
Chicago, IL 60628
United States
773-264-5900

Date of Last MSDS Revision/Edit: January, 2016.

Product Use: Galvanizing.

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Approximate Percent by Weight	CAS Number	Occupational Exposure Limits (OELs)		LD_{50} / LC_{50} Species and Route
Aluminum	(see below)	7429-90-5	OSHA PEL	15 mg/m^3 (total dust) 5 mg/m^3 (respirable dust)	No Data
			ACGIH TLV	1 mg/m^3 (respirable dust)	
			NIOSH REL	10 mg/m^3 (total dust) 5 mg/m^3 (respirable dust)	
Bismuth	(see below)	7440-69-9	OSHA PEL	None Established	LD_{50}, rat, oral 5,000 mg/kg
			ACGIH TLV	None Established	LD_{50}, mouse, oral 10,000 mg/kg
			NIOSH REL	None Established	
Tin	(see below)	7440-31-5	OSHA PEL	2 mg/m^3	No Data
			ACGIH TLV	2 mg/m^3	
			NIOSH REL	2 mg/m^3	
Zinc	(see below)	7440-66-6	OSHA PEL	None Established	LD_{50}, mouse, oral >5,000 mg/kg
			ACGIH TLV	None Established	
			NIOSH REL	None Established	

NOTE: OELs for individual jurisdictions may differ from OSHA PELs. Check with local authorities for the applicable OELs in your jurisdiction. OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. OEL – Occupational Exposure Limit, PEL – Permissible Exposure Limit, TLV – Threshold Limit Value, REL – Recommended Exposure Limit.
While there are no established OELs for zinc as such, there are OELs for zinc oxide, which may be formed during burning, welding or other fuming processes. The OSHA PEL for zinc oxide dust is 15 mg/m3 (total) and 5 mg/m3 (respirable); the OSHA PEL for zinc oxide fume is 5 mg/m3. The ACGIH TLV for zinc oxide is 2 mg/m3 (respirable fraction) with a Short Term Exposure Limit (STEL) of 10 mg/m3 (respirable fraction). The NIOSH REL for zinc oxide (dust or fume) is 5 mg/m3 10 hr TWA with a 15 mg/m3.ceiling for zinc oxide dust and a 10 mg/m^3 STEL for zinc oxide fume (15 min. sample).
There are no established OELs for either bismuth metal or its oxides.

ALLOY	Aluminum	Bismuth	Tin	Zinc
1	0-1%	10-30%	0–50%	Remainder
2	0-15%	0-30%	0-30%	Remainder

Trade Names and Synonyms: BritePlus® Alloy

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: A lustrous silvery-blue metal that does not burn in bulk but may form explosive mixtures if dispersed in air as a fine powder. Contact with acids or alkalis may generate flammable hydrogen gas. Do NOT use water or foam in fire fighting. Apply dry chemical, sand or special powder extinguishing media. This product is relatively non-toxic and does not pose an immediate hazard to the health of emergency response personnel or to the environment in an emergency situation.

Potential Health Effects: Metallic zinc, aluminum, bismuth and tin are relatively non-toxic to humans. This product may cause mild local irritation to eyes, nose, throat and upper airways if heated to the point of fuming. Acute over-exposure to zinc oxide fume may cause metal fume fever, characterized by flu-like symptoms such as chills, fever, nausea, and vomiting. Zinc, aluminum, bismuth and tin are not listed as carcinogens by OSHA, NTP, IARC, ACGIH or the EU. (See Toxicological Information, Section 11)

Potential Environmental Effects: Since the product is an alloy and the constituent metals are not bioavailable, it will have minimal direct toxic effects. However, its processing or extended exposure in the environment may result in the formation of compounds that can potentially be toxic to aquatic and terrestrial organisms. (See Ecological Information, Section 12)

EU Risk Phrase(s): Not applicable – zinc, aluminum, bismuth and tin are not dangerous substances.

SECTION 4. FIRST AID MEASURES

Eye Contact: Do not allow victim to rub eye(s). Let the eye(s) water naturally for a few minutes. If particle/dust does not dislodge, flush with lukewarm, gently flowing water for 5 minutes or until particle/dust is removed, while holding eyelid(s) open. If irritation persists, immediately obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye.

Skin Contact: *Dust:* No health effects expected. If irritation does occur, flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice. *Molten Metal:* Flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

Inhalation: If symptoms are experienced remove source of contamination or move victim to fresh air. Obtain medical advice.

Ingestion: If swallowed, no specific intervention is indicated as this material is not likely to be hazardous by ingestion. However, if irritation or discomfort occurs, obtain medical advice.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Massive metal is not flammable; however, finely-divided metallic dust or powder may form flammable or explosive dust clouds when dispersed in the air at high concentrations and exposed to heat, flame, or other ignition sources. Bulk dust in a damp state may heat spontaneously and ignite on exposure to air. Contact with acids and alkalis may result in evolution of hydrogen gas which is potentially explosive. Mixtures with potassium chlorate or ammonium nitrate may explode on impact.

Extinguishing Media: Do NOT use water, aqueous foam, CO_2 or Halons, particularly on molten metals. Apply dry chemical, sand, or special powder extinguishing media.

Fire Fighting: If possible, move containers from fire area and cool containers exposed to flame. Apply dry chemical, sand, or special powder extinguishing media. Zinc oxide fumes may evolve in fires. Fire fighters should be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face piece mask.

Flashpoint and Method: Not Applicable.

Upper and Lower Flammable Limit: Lower Flammable Limit (Zinc Dust): 500 g/m^3; Upper Flammable Limit: Not Applicable.

Autoignition Temperature: Approximately 680°C (metallic Zn dust in air).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Solid metal is recyclable. Vacuuming recommended for accumulated metal dust. Molten metal should be allowed to solidify prior to clean-up. Return uncontaminated spilled material to the process if possible. Place contaminated and non-recyclable material in suitable labelled containers for later disposal. Treat or dispose of waste material in accordance with all local, regional and national requirements, as applicable.

Personal Precautions: Protective clothing, gloves, safety glasses and a respirator are recommended for persons exposed to potentially hazardous levels of BritePlus® fumes. Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with dust and fume. Where molten metal is involved, heat-resistant gloves and suitable clothing for protection from hot-metal splash should be worn.

Environmental Precautions: Since the product is an alloy and the constituent metals are not bioavailable, it will have minimal direct toxic effects. However, its processing or extended exposure in the environment may result in the formation of compounds that can potentially be toxic to aquatic and terrestrial organisms. Release to water and soil should be prevented.

SECTION 7. HANDLING AND STORAGE

Store metal in a DRY area, away from incompatible materials. Ingots suspected of containing moisture should be THOROUGHLY DRIED before being added to a molten bath. Otherwise, entrained moisture could expand explosively and spatter molten metal out of the bath.

EU Safety Phrase(s): Not applicable – zinc, aluminum, bismuth and tin are not dangerous substances.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Clothing: Gloves and coveralls, shop coat or other work clothing with long sleeves are recommended to protect from molten metal splashes and also prevent prolonged or repeated direct skin contact when this product is processed. Eye protection should be worn where fume or dust is generated. Respiratory protection may be required where oxide fume is generated. Where hot or molten metal is handled, heat resistant gloves, goggles or face shield, and clothing to protect from hot metal splash, should be worn. Safety type boots are recommended.

Ventilation: Use adequate local or general ventilation to maintain the concentration of zinc, aluminum and tin oxide dust and fume in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system. Where metallic dust particles of zinc or aluminum metals are being collected and transported by a ventilation system, use of a non-sparking, grounded ventilation system separate from other exhaust ventilation systems is recommended. Locate dust collectors outdoors if possible and provide dust collectors with explosion vents or blow out panels. Refer to appropriate NFPA Standards 484, 654, and/or 68 for specific guidance.

Respirators: Where zinc, aluminum, and tin oxide fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-95 particulate filter cartridge as a minimum).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Shiny bluish-silvery lustrous metal	**Odour:** None	**Physical State:** Solid	**pH:** Not Applicable
Vapour Pressure: Negligible @ 20°C	**Vapour Density:** Not Applicable	**Boiling Point/Range:** 907°C	**Melting Point/Range:** 380° to 420°C
Specific Gravity: 7.1	**Evaporation Rate:** Not Applicable	**Coefficient of Water/Oil Distribution:** Not Applicable	**Odour Threshold:** None
Solubility: Insoluble in water			

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: This material is stable and not considered reactive under normal temperatures and pressures. Hazardous polymerization or runaway reactions will not occur.

Incompatibilities: Contact with acids and alkalis may generate highly flammable hydrogen gas. Arsenic or antimony compounds in contact with zinc metal in an acidic medium may evolve highly toxic ARSINE or STIBINE gas. Incompatible with strong oxidizing agents such as chlorine, fluorine, bromine, bromine trifluoride, nitrosyl fluoride, and iodine pentafluoride sodium potassium or barium peroxide, sodium or potassium chlorate, chromium trioxide and fused ammonium nitrate or other chlorates, bromates, iodates, peroxides, perchlorates, nitrates, nitrites, performates, persulfates, and halogens. Also incompatible with elemental sulphur dust, halogenated hydrocarbons or chlorinated solvents and chlorinated rubber.

Hazardous Decomposition Products: Thermal oxidation of this metal or dust will generate metal oxide fume which, on inhalation in sufficient quantity, can produce metal fume fever, a transient influenza-like illness.

SECTION 11. TOXICOLOGICAL INFORMATION

General: In the metallic form in which this product is sold it is relatively non-toxic. The major route of exposure would be through the generation and inhalation of metal oxide fume, principally composed of zinc oxide.

Acute:
Skin/Eye: Contact with dust or fume may cause local irritation but would not cause tissue damage.

Inhalation: If excessive quantities of zinc oxide fume are inhaled, it can result in the condition called metal fume fever. The symptoms of metal fume fever will occur within 3 to 10 hours, and include immediate dryness and irritation of the throat, tightness of the chest, and coughing which may later be followed by flu-like symptoms of fever, malaise, perspiration, frontal headache, muscle cramps, low back pain, occasionally blurred vision, nausea, and vomiting. The symptoms are temporary and generally disappear, without medical intervention, within 24 to 48 hours of onset. There are no recognized complications, after-effects, or chronic effects that result from this condition.

Ingestion: When ingested in excessive quantities, zinc and tin can irritate the stomach resulting in nausea and vomiting.

Chronic:
There is no chronic form of metal fume fever but in rare instances an acute incident may be followed by complaints such as bronchitis or pneumonia. Some workers may develop a short-term immunity (resistance) so that repeated exposure to zinc oxide fumes does not cause metal fume fever. This immunity (resistance) however is quickly lost after short absences from work (weekends or vacations). Workers exposed to finely-divided metallic zinc for up to 35 years revealed no acute or chronic illnesses attributable to zinc. Aluminum and bismuth dust have little or no adverse effect on the lungs and do not produce any identifiable toxic effects in the body. Chronic exposure to tin dust or fumes is known to cause a benign pneumoconiosis (Stannosis) characterized by progressive X-ray changes of the lung while exposure continues, but without any distinctive fibrosis or scarring of the lungs and without any evidence of disability. Zinc, aluminum, bismuth and tin are not listed as carcinogens by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the American Conference of Governmental Industrial Hygienists (ACGIH) or the European Union (EU).

SECTION 12. ECOLOGICAL INFORMATION

While this product is relatively insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of zinc, tin, bismuth and aluminum in bioavailable forms. Compounds of these metals can potentially be toxic to aquatic organisms, especially fish, with zinc and aluminum being toxic at relatively moderate concentrations. Tin and bismuth compounds have relatively low toxicity; however, there is only limited information on their environmental fate and effects. Water hardness, pH and dissolved organic carbon content are factors which can regulate both the degree of toxicity and the bioaccumulation of dissolved metals.

In soil, tin and bismuth tend to become highly sorbed to soil particles in relation to soil properties; however, zinc and aluminum can be more mobile and bioavailable, especially in acidic soils. Zinc, tin, bismuth and aluminum all have the potential to bioaccumulate in plants and animals in aquatic and terrestrial environments.

SECTION 13. DISPOSAL CONSIDERATIONS

If material cannot be returned to process or salvage, dispose of in accordance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

Proper Shipping Name ..... Not regulated.
Transport Canada and DOT Hazard Classification ..... Not applicable.
Transport Canada and U.S. DOT Product Identification Number ..... Not applicable.
Marine Pollutant ..... No.
IMO Classification ..... Not regulated.

SECTION 15. REGULATORY INFORMATION

U.S.
Ingredients Listed on TSCA Inventory ..... Yes

Hazardous Under Hazard Communication Standard ..... Yes (due to OSHA PELs for Tin and Aluminum)

CERCLA Section 103 Hazardous Substances ..... Zinc.....Yes .....RQ: N/A*
* reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers.

EPCRA Section 302 Extremely Hazardous Substance..... No Ingredients Qualify

EPCRA Section 311/312 Hazard Categories ..... No Hazard Categories Apply

EPCRA SECTION 313 Toxic Release Inventory:..... This product does not contain any toxic chemicals subject to the Toxic Release reporting requirements. However, potential by-products from working with this product, "Zinc (Fume or Dust)" CAS 7440-66-6 and "Aluminum (Fume or Dust)" CAS 7429-90-5 are reportable.

CANADIAN:
Ingredients Listed on DSL..... Yes

WHMIS Classification:..... This product is not a Controlled Product under the Controlled Products Regulations.

EUROPEAN UNION:
Ingredients Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS):..... Yes

EU Classification:..... Not applicable. None of the following are listed as dangerous substances: Zinc, Aluminum, Bismuth, Tin.

SECTION 16. OTHER INFORMATION

The information in this Material Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, Seventh Edition plus updates.
- American Conference of Governmental Industrial Hygienists, Guide to Occupation Exposure Values - 2009.
- American Conference of Governmental Industrial Hygienists, 2010, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- Bretherick's Handbook of Reactive Chemical Hazards, 20th Anniversary Edition. (P. G. Urben Ed.) 1995.
- Canadian Centre for Occupational Health and Safety (CCOHS) Hamilton, ON, CHEMINFO Record No. 548 – Zinc Powder.
- Canadian Centre for Occupational Health and Safety (CCOHS) Hamilton, ON, CHEMINFO Record No. 82 – Aluminum.
- Canadian Centre for Occupational Health and Safety (CCOHS) Hamilton, ON, CHEMINFO Record No. 3462 – Tin.
- European Economic Community, Commission Directives 91/155/EEC and 67/548/EEC.
- Industry Canada, SOR/88-66, Controlled Products Regulations, as amended.
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- National Library of Medicine, National Toxicology Information Program, Hazardous Substance Data Bank.
- Patty's Toxicology, Fifth Edition, 2001: E. Bingham, B. Cohrssen & C.H. Powell, Ed.
- Palmieri, Yves, Bismuth Institute, 1993, Bismuth: The Amazingly "Green" Environmentally-Minded Element.
- U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, NIOSH Pocket Guide to Chemical Hazards. CD ROM Edition September 2005.
- U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2006, Toxicological Profile for Aluminum.
- U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2005, Toxicological Profile for Zinc.
- U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2003, Draft Toxicological Profile for Tin.
- U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, Registry of Toxic Effects of Chemical Substances (RTECS) online – last accessed June 30, 2010.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

Notice to Reader

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Imperial Alloys Corp. extends no warranty and assumes no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This Material Safety Data Sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

1. Identification of the product and of the company/undertaking

1.1 Product identifier

Coated Abrasives (Cat. #2)

1.2 Use of the product

Abrasives for industrial and professional application

1.3 Details of the supplier of the voluntary product information:

Manufactured For: HUB Industrial Supply

Address: 371 SW Ring Court

Lake City, FL 32025

Telephone: 800-743-9401 Fax: 866-324-5821

E-mail: customerservice@hubindustrial.com

1.4 Emergency telephone number:

Tel.: 1-800-262-8200

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2. Hazards identification

2.1. Classification

STOT RE. 1, H372
The hazard identification is based on a formalistic procedure as the hazard statements of the ingredients are summarizes under section 3. This does not correspond to the hazardousness of the product itself.

2.2. Label elements

Signal word:

Danger

Hazards statement:

H372: Causes damage to organs through prolonged or repeated exposure

Precautionary statements:

P260: Do not breathe dust.

P264: Wash thoroughly after handling. P410: Protect from sunlight.

P501: Dispose of contents and container in accordance with local and national regulations.

2.3. Other hazards

A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being ground. Most of the dust generated during grinding is from the base material being ground and the potential hazard from this exposure must be evaluated. This dust may present a fire or dust explosion hazard and may present a serious health hazard.

---

3. Composition/information on ingredients

Substance	CAS-N°	Conc. (%)	Classification acc. OSHA Hazard Communication Standard, 29 CFR 1910.1200.	
			Hazard classes/ hazard categories	Hazard statements
Cryolite	13775-53-6	1-30%	Acute Tox. 4 STOT wdh. 1	H332 H372
and/or Formaldehyde	50-00-0	<0,1%	Carc. 1B Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Skin Corr. 1B Skin Sens. 1	H350 H301 H311 H331 H314 H317
Aluminium Oxide Mineral	1344-28-1	0-40%		

(For full text of H- phrases see section 16)

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4. First aid measures

See also section 8 and 16

4.1. Description of first aid measures

Inhalation:	Not possible, due to the form of the product
Eye contact:	Not possible, due to the form of the product
Skin contact:	No harmful effects known
Ingestion:	Not likely, due to the form of the product; if necessary contact physician
Note to physician:	Not available.

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

Not known.

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

Not relevant. Treat symptomatically.

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5. Fire fighting measures

5.1. Extinguishing media

Extinguishing media: water, foam, sand, powder or CO_2 as appropriate for surrounding materials

5.2. Special hazards arising from the product

Toxic fumes may occur. Use respiratory protective equipment.

5.3. Advice for fire fighters

Extinguishing materials should be selected according to the surrounding area.

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6. Accidental release measures

Not applicable.

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7. Handling and storage

Follow instructions of grinding machine manufacturers and the relevant national regulations. In addition, observe the safety recommendations of the manufacturer.

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8. Exposure controls/personal protection

8.1. Control parameters

Before grinding it is recommended to perform a risk assessment and to use personal protection equipment accordingly.

Note: Hazardous dust of the workpiece material may be generated during and/or sanding operations. National regulations for dust exposures limit values have to be taken into consideration.

Occupational exposure limit values and/or biological limit values

Keep exposure to the following components under surveillance. (Observe also the regional official regulations)

Substance	CAS-N°	Agency	Threshold limits
alpha-Alumina	1344-28-4	OSHA	TWA: 15 mg/m^3 (total dust)
			TWA: 5 mg/m^3(respirable fraction)
		CMRG	TWA: 1 fiber /cm^3
Cryolite	15096-52-3	ACGIH	TWA (as F): 2.5 mg/m^3
		OSHA	TWA: 2.5 mg/m^3 (total dust)
			TWA (as F): 2.5 mg/m^3
Formaldehyde	50-00-0	ACGIH	TWA: 0.1 mg/m^3
			STEL: 0.3 mg/m^3
		OSHA	TWA: 0.75 mg/m^3
			STEL: 2 mg/m^3
		NIOSH	TWA: 0.016 mg/m^3

ACGIH: American Conference of governmental Industrial Hygienists

CMRG: Chemical Manufacturer´s Recommended Guidelines

OSHA: United States Department of Labor – Occupational Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

8.2. Exposure controls

8.2.1. Individual protection measures

8.2.1.1. Respiratory protection: Use respiratory protective equipment
(type depends on specific application and material being ground)

8.2.1.2. Hand protection: Wear protective gloves
(type depends on specific application and material being ground)

8.2.1.3. Eye protection: Wear protective goggles or face shield
(type depends on specific application and material being ground)

8.2.1.4. Hearing protection: Use hearing protection
(type depends on specific application and material being ground)

8.2.1.5. Body protection: Use protective clothing
(type depends on specific application and material being ground)

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9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid
Colour:	not applicable/different colors
pH:	not applicable
Melting point:	not applicable
Boiling point:	not applicable
Density:	not applicable
Viscosity:	not applicable
Solubility in water:	not relevant (article)

9.2. Other information

None.

---

10. Stability and reactivity

10.1. Reactivity

Coated Abrasives are stable when handled or stored correctly.

10.2. Chemical stability

No decomposition in normal use.

10.3. Possibility of hazardous reactions

No dangerous reactions known.

10.4. Conditions to avoid

Coated Abrasives are stable when handled or stored correctly.

10.5. Incompatible materials

No dangerous reactions known.

10.6. Hazardous decomposition products

At temperatures exceeding 250° C hazardous or toxic decomposition products may be generated.

---

11. Toxicological information

11.1. Information on toxicological effects

Inhalation: Dust may cause respiratory irritation.

Ingestion: None expect under normal use conditions.

Skin Contact: None expected under normal use conditions. Rubbing product across the skin may cause mechanical irritation or abrasions.

Eye contact: Dust may cause eye irritation. Dust particles may cause abrasive injury to the eyes.

Carcinogenicity:

Acute Toxicity:

Aluminium Oxide	Oral	>5000 mg/kg (LD50, rat)
	Inhalation	>7.6 mg/L/h (LC50, rat)
Cryolite	Oral	>10000 mg/kg (LD50, rat)
	Inhalation	>200 mg/L (LC50, rat)
	Dermal	>2000 mg/kg (LD50, rabbit)
Formaldehyde	Oral	500mg/kg (LD50, rat)
	Dermal	270 mg/kg (LD50, rabbit)
	Inhalation	0.578 mg/l/4h (LC50, rat)

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12. Ecological information

12.1. Toxicity

No effects known.

12.2. Persistence and degradability

No biodegradable potentials known.

12.3. Bioaccumulative potential

No potentials known.

12.4. Mobility in soil

No potentials known.

12.5. Results of PBT and vPvB assessment

Not relevant.

12.6. Other adverse effects

No effects known.

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13. Disposal considerations

13.1. Disposal methods

13.1. Product

Follow local/ regional/ national/ international regulations.

13.2. Packing

Follow local/ regional/ national/ international regulations.

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14. Transport information

The product is not regulated per U.S. DOT, IATA or IMO.

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15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the product

California Proposition 65:

⚠**WARNING:** This product can expose you to Formaldehyde, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

15.2. Chemical safety assessment

Not relevant.

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16. Other information

Changes to the previous versions

See section 1-16

Hazard statements referred to in section 2 and 3

H350 May cause cancer

H301 Toxic if swallowed.

H311 Toxic in contact with skin.

H331 Toxic if inhaled.

H332 Harmful if inhaled.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H372 Causes damage to organs through prolonged or repeated exposure. Target organs: lungs, skeleton

The above information is based on our current standard of knowledge and does not constitute any warranty of conditions of the product. The information does not form part of any contractual agreement. It remains the user's responsibility to adhere existing laws and regulations.

Revision Date: 11/26/2019

Product

APPENDIX

The below represents HUB products covered under Coated Abrasives (Cat #2):

004-006-164, 004-006-165, 004-006-166, 004-006-167, 004-006-168, 004-006-169, 004-006-170, 004-006-171, 004-006-172, 004-006-173, 004-006-174, 004-006-175, 004-006-176 ,004-006-177, 004-006-178, 004-006-179, 004-006-180, 004-006-181, 004-006-182, 004-006-183, 004-006-184, 004-006-185, 004-006-186, 004-006-187, 004-006-188, 004-006-189, 004-006-190, 004-006-191, 004-006-192, 004-006-193, 004-006-194, 004-006-195, 004-006-196, 004-006-197, 004-006-198, 004-006-199

Danger

Coated Abrasives (Cat.2)

H372: Causes damage to organs through prolonged or repeated exposure
P260: Do not breathe dust.
P264: Wash thoroughly after handling.
P410: Protect from sunlight.
P501: Dispose of contents and container in accordance with local and national regulations.

HUB Industrial Supply, LLC.
371 SW Ring Court
Lake City, FL 32025
Emergency Number: 1-800-262-8200

1. IDENTIFICATION

Product Identity / Trade Name: Coated Abrasives - Resin over Resin, Cotton Cloth, Fiber, Polyester Backing or Paper (Dry Wall Sheets, Cloth or Paper Sheets, Flap Wheels, Flap Discs, Fiber Discs, PSA Cloth Discs, Paper Stearate Discs, Shop Rolls, Abrasive Belts, Floor Sanding Products)

Product Use: Abrasive materials used for sanding metals, concrete, masonry and building materials.
Restriction on Use: Use only as directed

Manufacturer United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131 **Emergency Phone**: (860) 456-7131

Date of Preparation: June 14, 2018

2. HAZARD(S) IDENTIFICATION

As sold, this product is a manufactured article. During processing, dust generated has the following hazards:

Classification:

Physical	Health
Not Hazardous	Specific Target Organ Toxicity – Repeated Exposure Category 1 (Respiratory tract, teeth, and bones)

Hazards not otherwise classified: None

Labeling Elements:

Danger!

Hazard statement(s)
H372 Causes damage to respiratory tract, teeth, and bones through prolonged or repeated exposure.

Precautionary statement(s)
P260 Do not breathe dust.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P314 Get medical attention if you feel unwell.
P501 Dispose of contents and container in accordance with local and national regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Aluminum Oxide	1344-28-1	0-50
and/or Silicon Carbide	409-21-2	0-50
and/or Garnet	12178-41-5	0-30
and/or Zirconium Oxide	1314-23-4	0-30
Cured Phenolic or Urea Formaldehyde Resin	N/A	5-40
and/or Calcium Carbonate	1317-65-3	0-25
and/or Calcium Stearate	1592-23-0	5-10
and/or Calcium Sulfate	7778-18-9	0-5
and/or Zinc Stearate	557-05-1	0-10
and/or Cryolite (as fluorides)*	15096-52-3	0-15
and/or Potassium Fluoroborate	14075-53-7	5-0
and/or Flame Retardant	Proprietary	0-8
And/or Kaolin	1332-58-7	0-5
and/or Crystalline Silica, Quartz*	14808-60-7	0.1-1
Cotton or Polyester Cloth	N/A	15-55
and/or paper backing	N/A	20-65
and/or fibre	N/A	35-70

* Test data indicates that the crystalline silica in this product is inextricably bound in a manner that no exposure occurs during normal use and handling. Therefore this product is not classified as a carcinogen.

The specific identity and/or exact percentage has been withheld as a trade secret.

4. FIRST-AID MEASURES

Ingestion: If sanding dust is swallowed, seek medical attention.
Inhalation: If overexposed to sanding dust, remove victim to fresh air and get medical attention.
Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.
Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

Most important symptoms/effects, acute and delayed: May cause mechanical eye and skin irritation. Inhalation of duct may cause nose, throat and upper respiratory irritation. Exposure to dust generated from processing the base material or coatings may present additional health hazards.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is generally not required.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding fire.

Specific hazards arising from the chemical: This product is not combustible, however, consideration must be given to the potential fire/explosion hazards from the base material being processed. Many materials create flammable/explosive dusts or turnings when sanded, machined or ground.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate respirator and protective clothing as needed to avoid eye contact and inhalation of dust.

Environmental precautions: Avoid release into the environmental. Report spills as required to authorities.

Methods and materials for containment and cleaning up: Pick up, sweep up or vacuum and place in a container for disposal. Minimize generation of dust.

7. HANDLING AND STORAGE

Precautions for safe handling: Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling and use, especially before eating, drinking or smoking. Consider potential exposure to components of the base materials or coatings being sanded or ground. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

Conditions for safe storage, including any incompatibilities: Store in a dry location.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Aluminum Oxide	1 mg/m3 ACGIH TLV (respirable fraction) (as Al metal) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Silicon Carbide	3 mg/m3 TWA ACGIH TLV (respirable fraction) 10 mg/m3 TWA ACGIH TLV (inhalable fraction) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Garnet	None Established
Zirconium Oxide (as Zr)	5 mg/m3 TWA ACGIH TLV 10 mg/m3 STEL ACGIH TLV 5 mg/m3 TWA OSHA PEL
Cured Phenolic or Urea Formaldehyde Resin	None Established
Calcium Carbonate	15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Calcium Stearate	None Established
Calcium Sulfate	10 mg/m3 TWA ACGIH TLV (inhalable) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Zinc Stearate	10 mg/m3 TWA ACGIH TLV 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Cryolite (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Potassium Fluoroborate (as fluorides)	2.5 mg/m3 TWA ACGIH TLV 2.5 mg/m3 TWA OSHA PEL
Potassium Fluoroborate (as borates)	2 mg/m3 TWA ACGIH TLV (Inhalable)

	6 mg/m3 TWA ACGIH STEL (Inhalable)
Flame Retardant	None Established
Kaolin	2 mg/m3 TWA ACGIH TLV (respirable) 15 mg/m3 TWA OSHA PEL (total dust) 5 mg/m3 TWA OSHA PEL (respirable fraction)
Cotton or Polyester Cloth	None Established
Crystalline Silica, Quartz	10 mg/m^3 (respirable) OSHA PEL % Silica + 2 30 mg/m^3 (total dust) OSHA PEL % Silica + 2 0.05 mg/m3 TWA OSHA PEL (respirable dust) 0.025 mg/m3 TWA ACGIH TLV (Respirable)
Paper Backing	None Established
Fiber	None Established

Note: Consider also components from base materials and coatings.

Appropriate engineering controls: Use local exhaust or general ventilation as required to minimize exposure to dust and maintain the concentration of contaminants below occupational applicable limits.

Individual protection measures, such as personal protective equipment:
Respiratory protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being ground in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.
Skin protection: Cloth or leather gloves recommended.
Eye protection: Safety goggles or face shield over safety glasses with side shields.
Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Cloth or paper coated with abrasive material in sheets, discs or on wheels.
Odor: No Odor

Odor threshold: Not applicable	**pH:** Not applicable
Melting point/freezing point: Not applicable	**Boiling Point:** Not applicable
Flash point: Not applicable	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not combustible	
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:**
Relative density: Not applicable	**Solubility(ies):** Not soluble
Partition coefficient: n-octanol/water: Not applicable	**Auto-ignition temperature:** Not applicable
Decomposition temperature: Not applicable	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical stability: Stable.
Possibility of hazardous reactions: None known.
Conditions to avoid: None known
Incompatible materials: None known
Hazardous decomposition products: Dust from sanding could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being sanded or coatings applied to the base material.

11. TOXICOLOGICAL INFORMATION

Routes of exposure:
Inhalation: Dust may cause respiratory irritation.
Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract.
Skin contact: None expected under normal use conditions. Rubbing product across the skin may cause mechanical irritation or abrasions.
Eye contact: Dust may cause eye irritation. Dust particles may cause abrasive injury to the eyes.

Chronic effects from short- and long-term exposure: Long-term overexposure to respirable dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Chronic effects may be aggravated by smoking. Excessive inhalation of respirable crystalline silica dust may cause may cause a progressive, disabling and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. Test data indicates that the crystalline silica in this product is inextricably bound in a manner that no exposure occurs during normal use and handling. Prolonged overexposure to fluorides may cause a bone condition, fluorosis.

Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being sanded. Most of the dust generated during sanding is from the base material being sanded and the potential hazard from this exposure must be evaluated.

Carcinogenicity: Crystalline silica quartz is listed as “Carcinogenic to Humans” (Group 1) by IARC and “Known to be a Human Carcinogen" by NTP. The crystalline silica is inextricably bound in a manner that no exposure occurs during normal use and handling. None of the other components are listed as a carcinogen or potential carcinogen by OSHA, NTP or IARC.

Numerical measures of toxicity:
Aluminum Oxide: LD50 Oral rat >5,000 mg/kg, Inhalation rat LC50 >7.6 mg/L/1 hr
Silicon Carbide: Oral rat LD50 >2000 mg/kg, Dermal rat LD50 >2000 mg/kg
Garnet: No toxicity data available
Zirconium Oxide: Oral rat LD50 > 5000 mg/kg, Inhalation rat LC50 > 4.3 mg/L/4 hr.
Calcium Carbonate: No toxicity data available
Calcium Stearate: No toxicity data available
Calcium Sulfate: Oral rat LD50>1581 mg/kg, Inhalation rat LC50 >3.26 mg/L/4 hr
Zinc Stearate: LD50 oral rat > 1581 mg/kg, LC50 inhalation rat > 3.26 mg/L
Cryolite: LD50 oral rat > 10000 mg/kg, LC50 inhalation rat > 200 mg/L, LD50 dermal rabbit > 2000 mg/kg
Potassium Fluoroborate: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 >5.3 mg/L/4 hr
Kaolin: Oral rat LD50 >5000 mg/kg
Crystalline Silica, Quartz: No toxicity data available

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Aluminum Oxide: 96 hr LC50 Pimephales promelas 35 mg/L
Silicon Carbide: No data available
Garnet: No data available
Zirconium Oxide: 96 hr LC50 Danio rerio >100 mg/L, 48 hr EC50 daphnia magna >100 mg/L
Calcium Carbonate: No data available
Calcium Stearate: No data available
Calcium Sulfate: 96 hr LC50 Pimephales promelas >1970 mg/L, 48 hr EC50 daphnia magna >79 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata >79 mg/L
Zinc Stearate: No data available
Cryolite: Danio rerio LC50 > 100 mg/L/96hr
Potassium Fluoroborate: 96 hr LC50 Leuciscus idus 760 mg/L, 48 hr EC50 daphnia magna >100 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata >100 mg/L
Kaolin: No data available
Crystalline Silica, Quartz: 72 hr LC50 carp >10,000 mg/L

Persistence and degradability: Biodegradation is not applicable to inorganic compounds.
Bioaccumulative potential: No data available
Mobility in soil: No data available.
Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated	None	None	
TDG	None	Not Regulated	None	None	

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None identified.

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Classified as per Section 2 of this SDS.

SARA Section 313: This product contains the following toxic chemicals 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 (Toxic Chemical Release Reporting):

Components	C.A.S. #	WT %
Zinc Stearate (as zinc compounds)	557-05-1	0-10

(Only in 9x11 Sheets - No Load Stearate, Fileboard Sheets - No Load, PSA Paper Discs - Stearate and Premium and Hook and Loop Paper Discs - Premium)

16. OTHER INFORMATION

NFPA Rating: Health = 1 Flammability = 0 Instability = 0
HMIS Rating: Health = 1 Flammability = 0 Physical Hazard =0

Date Previous Revision: 3/31/15
Date This Revision: 6/14/18
Revision Summary:
6/14/18: Three year review. Change to Section 8, 15 & 16**.**
3/31/15: Changed all sections. Updated format to GHS.
12/01/09: Section 8 Exposure Limits; Comprehensive Review

The preceding information is believed to be correct and current as of the date of preparation of this Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.

SAFETY DATA SHEET

Revision Date 15-Jan-2021 **Version** 10

1. IDENTIFICATION

Product identifier
Product Name COPPER ANTI-SEIZE LUBRICANT 16 OZ.

Other means of identification
Product Code 31163

Recommended use of the chemical and restrictions on use
Recommended Use Lubricant
Uses advised against No information available

Details of the supplier of the safety data sheet
Manufacturer Address
ITW Permatex
6875 Parkland Blvd.
Solon, Ohio 44139 USA
Telephone: 1-87-Permatex
(866) 732-9502

May Also Be Distributed by:
ITW Permatex Canada
101-2360 Bristol Circle
Oakville, ON Canada L6H 6M5
Telephone: (800) 924-6994

24-hour emergency phone number
Chem-Tel: 800-255-3924
International Emergency:
00+1+ 813-248-0585
Contract Number: MIS0003453

E-mail address: mail@permatex.com

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B

Label elements

Emergency Overview

Signal word
Danger

May cause cancer

Appearance Copper	**Physical state** Paste Liquid	**Odor** Petroleum

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention

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

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

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

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity 27.25 % of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Chemical Name	CAS No	Weight-%
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC	64742-54-7	30 - 60
MAGNESIUM SILICATE	14807-96-6	10 - 30
LIMESTONE	1317-65-3	10 - 30
COPPER	7440-50-8	3 - 7
GRAPHITE	7782-42-5	1 - 5
AMORPHOUS SILICA	7631-86-9	1 - 5

4. FIRST AID MEASURES

Description of first aid measures

General advice Call 911 or emergency medical service. Remove and isolate contaminated clothing and shoes.

Eye contact In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Skin contact IF ON SKIN:. Wash with soap and water.

Inhalation Move victim to fresh air. If breathing is irregular or stopped, administer artificial respiration.

Administer oxygen if breathing is difficult.

Ingestion IF SWALLOWED:. Do NOT induce vomiting.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Most important symptoms and effects, both acute and delayed

Symptoms See section 2 for more information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Dry chemical, CO2, water spray or regular foam, Water spray, fog or regular foam, Move containers from fire area if you can do it without risk, Dike fire-control water for later disposal

Unsuitable extinguishing media
Do not scatter spilled material with high pressure water streams

Specific hazards arising from the chemical
Some may burn but none ignite readily. Those substances designated with a "P" may polymerize explosively when heated or involved in a fire. Some may be transported hot.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Do not touch or walk through spilled material. Stop leak if you can do it without risk.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Prevent dust cloud.

Methods for cleaning up Cover liquid spill with sand, earth or other non-combustible absorbent material. With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. Take up with sand or other non-combustible absorbent material and place into containers for later disposal. Cover powder spill with plastic sheet or tarp to minimize spreading.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep in a dry, cool and well-ventilated place.

Incompatible materials Strong oxidizing agents, Acids, Alkalis

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines .

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
MAGNESIUM SILICATE 14807-96-6	TWA: 2 mg/m³ particulate matter containing no asbestos and <1% crystalline silica, respirable particulate matter	(vacated) TWA: 2 mg/m³ respirable dust <1% Crystalline silica, containing no Asbestos TWA: 20 mppcf if 1% Quartz or more;use Quartz limit	IDLH: 1000 mg/m³ TWA: 2 mg/m³ containing no Asbestos and <1% Quartz respirable dust
LIMESTONE 1317-65-3	-	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 15 mg/m³ total dust (vacated) TWA: 5 mg/m³ respirable fraction	TWA: 10 mg/m³ total dust TWA: 5 mg/m³ respirable dust
COPPER 7440-50-8	TWA: 0.2 mg/m³ fume	TWA: 0.1 mg/m³ fume TWA: 1 mg/m³ dust and mist (vacated) TWA: 0.1 mg/m³ Cu dust, fume, mist	IDLH: 100 mg/m³ dust, fume and mist TWA: 1 mg/m³ dust and mist TWA: 0.1 mg/m³ fume
GRAPHITE 7782-42-5	TWA: 2 mg/m³ respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m³ total dust synthetic TWA: 5 mg/m³ respirable fraction synthetic (vacated) TWA: 2.5 mg/m³ respirable dust natural (vacated) TWA: 10 mg/m³ total dust synthetic (vacated) TWA: 5 mg/m³ respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m³ TWA: 2.5 mg/m³ natural respirable dust
AMORPHOUS SILICA 7631-86-9	-	TWA: 50 µg/m³ excludes construction work, agricultural operations, and exposures that result from the processing of sorptive clays (vacated) TWA: 6 mg/m³ <1% Crystalline silica TWA: 20 mppcf : (80)/(% SiO2) mg/m ³ TWA	IDLH: 3000 mg/m³ TWA: 6 mg/m³

NIOSH IDLH Immediately Dangerous to Life or Health

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

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

Skin and body protection Wear protective natural rubber, nitrile rubber, Neoprene™ or PVC gloves.

Respiratory protection	Use NIOSH-approved air-purifying respirator with organic vapor cartridge or canister, as appropriate.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Paste Liquid
Appearance	Copper
Odor	Petroleum
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH	No information available	
Melting point / freezing point	No information available	
Boiling point / boiling range	No information available	
Flash point	216 °C / 421 °F	
Evaporation rate	No information available	Butyl acetate = 1
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	Air = 1
Relative density	1.21	
Water solubility	Insoluble in water	
Solubility(ies)	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC content	0%
Density	No information available
Bulk density	No information available
SADT (self-accelerating decomposition temperature)	No information available

10. STABILITY AND REACTIVITY

Reactivity
No information available

Chemical stability
Stable under normal conditions

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
Excessive heat.

Incompatible materials
Strong oxidizing agents, Acids, Alkalis

Hazardous Decomposition Products
Carbon oxides
Metal oxides
Halogenated compounds

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation May cause irritation of respiratory tract.

Eye contact Contact with eyes may cause irritation. May cause redness and tearing of the eyes.

Skin contact May cause skin irritation and/or dermatitis.

Ingestion Ingestion may cause irritation to mucous membranes.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC 64742-54-7	> 15 g/kg (Rat)	> 5000 mg/kg (Rabbit)	-
GRAPHITE 7782-42-5	-	-	> 2000 mg/m³ (Rat) 4 h
AMORPHOUS SILICA 7631-86-9	= 7900 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 2.2 mg/L (Rat) 1 h

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC 64742-54-7	A2	Group 1	Known	X
MAGNESIUM SILICATE 14807-96-6	-	Group 3	-	X
AMORPHOUS SILICA 7631-86-9	-	Group 3	-	-

ACGIH (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Not classifiable as a human carcinogen
NTP (National Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Chronic toxicity May cause adverse liver effects.
Target Organ Effects Central Vascular System (CVS), Eyes, kidney, Liver, Respiratory system, Skin.

The following values are calculated based on chapter 3.1 of the GHS document .
ATEmix (oral) 18281 mg/kg
ATEmix (dermal) 6332 mg/kg

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT.

Ecotoxicity

0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility
No information available.

Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Do not reuse container.
US EPA Waste Number	Not applicable

This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Not regulated
Marine pollutant	This product contains a chemical which is listed as a severe marine pollutant according to DOT.

IATA

Proper shipping name	Not regulated

IMDG

Proper shipping name	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies
PICCS	Complies

AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
COPPER - 7440-50-8	1.0

SARA 311/312 Hazard Categories

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

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
COPPER 7440-50-8	-	X	X	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
COPPER 7440-50-8	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
AMORPHOUS SILICA 7631-86-9	*Carcinogen

• *The asterisked chemical(s) listed are not subject to Proposition 65 because they are not airborne in the finished product

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
MAGNESIUM SILICATE 14807-96-6	X	X	X
LIMESTONE 1317-65-3	X	X	X
COPPER 7440-50-8	X	X	X
AMORPHOUS SILICA 7631-86-9	-	X	X
GRAPHITE 7782-42-5	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

WHMIS Hazard Class
D2A - Very toxic materials

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

NFPA	**Health hazards** 1	**Flammability** 1	**Instability** 0	-
HMIS	**Health hazards** 1	**Flammability** 1	**Physical hazards** 0	**Personal protection** B

NFPA (National Fire Protection Association)
HMIS (Hazardous Material Information System)

Revision Date 15-Jan-2021

Disclaimer
Illinois Tool Works Inc. believes the information contained in this data sheet is accurate as of the date compiled. However, Illinois Tool Works Inc. makes no warranty, express or implied, as to the accuracy, reliability or completeness of the information. User is responsible for evaluating whether such information or this product is fit for a particular purpose and suitable for a particular use or application. The information in this data sheet may not be valid if this product is used in combination with other products or in processes for which it was not designed. Illinois Tool Works Inc. disclaims any liability for consequential or incidental damages of any kind, including lost profits, arising from the sale or use of this product. Ensure you have the most current version of this data sheet by contacting us or reviewing our web site.

End of Safety Data Sheet

Date Prepared/Revised: 9/13/18 Version no.: 03 Supersedes: (9/15/15)

1.) Identification of the Mixture and of the Company

Product identifier**: Crown Brite Galvanize Coating 65% Zinc Rich - Bulk**

Product name:
7008 Brite Galvanize Coating 65% Zinc Rich

Relevant identified uses of the substance: Use on damaged galvanized surfaces, structural steel, automobiles, chain link fences, guard rails, hand rails, bridges, TV and radio towers, heat ducts, welded joints, storage tanks, signs and sign posts, equipment (farming, mining and construction, power plant, railroad, offshore, etc.), gutters, pipelines, transformers, corrugated metal buildings and anywhere the bright look of hot-dipped surfaces is desired. Ideal for industrial type application, (e.g., aviation, marine, manufacturing, petroleum).
Uses advised against: Do not apply at temperatures below 40°F (4°C), or if rain is imminent within 6 hours of application

CAS No:	**Not Applicable (mixture)**
EC No:	**Not Applicable (mixture)**
Index No:	**Not Applicable (mixture)**
Manufacturer/Supplier:	**Aervoe Industries Incorporated**
Street address/P.O. Box:	**1100 Mark Circle**
Country ID/Postcode/Place	**Gardnerville, Nevada 89410**
Telephone number:	**1-775-782-0100**
e-mail:	**mailbox@aervoe.com**
National contact:	**Aervoe Industries Incorporated**
For Product Information:	**1-800-227-0196**
Emergency telephone number:	**1-800-424-9300 (CHEMTREC – 24 hrs)**

2. Hazards identification

Classifications

Physical Hazards:	Flammable Liquid – 2
	Flam. Liq. 3
Health Hazards:	
	Carc. 1B
	Muta. 1B
	Asp. Tox. 1
	STOT RE 1
	Skin Irr. 2
	STOT SE 3
	Eye Irrit. 2
Environmental Hazards:	
	Aquatic Acute 1
	Aquatic Chronic 1
	Aquatic Tox. 2

Date Prepared/Revised: 9/13/18 Version no.: 03 Supersedes: (9/15/15)

Labeling

Signal Word: Danger

Hazard Statements:
H224 – Extremely flammable liquid and vapour.
H225 – Highly flammable liquid and vapour.
H226 – Flammable liquid and vapour.
H304 – May be fatal if swallowed and enters airways.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H336 – May cause drowsiness or dizziness.
H340 – May cause genetic defects
H350 – May cause cancer
H410 – Very toxic to aquatic life with long lasting effects.
H411 – Toxic to aquatic life with long lasting effects.

Precautionary Statements:
P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
P103 - Read label before use
P210 - Keep away from heat/sparks/open flames/hot surfaces - no smoking
P211 - Do not spray on an open flame or other ignition source
P251 - Pressurized container: Do not pierce or burn, even after use
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P262 - Do not get in eyes, on skin, or on clothing
P264 - Wash … thoroughly after handling
P280 - Wear protective gloves/eye protection/face protection

P303+P361+P353 - If on skin or hair, remove/takeoff immediately all contaminated clothing. Rinse skin with water/shower.
P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50ºC/122ºF
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation

Symbols/Pictograms:

3. Composition / Information on Ingredients

Composition

Chemical	Synonyms	CAS Number	EINECS Number	Weight Percent	Hazard Category	H-Code

Aliphatic Hydrocarbon	Petroleum Distillates	8052-41-3	232-489-3	1-5%	Carc. 1B Muta. 1B Asp. Tox. 1 STOT RE 1	H304 H340 H350 H372 (Nervous)
Aliphatic Petroleum Distillates	Solvent Naphtha	64742-89-8	265-192-2	7-13%	Flam Liq. 2 Skin Irr. 2 Asp. Tox. 1 STOT SE 3 Aquatic Tox. 2	H224 H304 H315 H336 H411
Zinc Powder	Zinc Dust	7440-66-6	231-175-3	10-30%	Aquatic Acute 1 Aquatic Chronic 1	H400 H410
Acetone	Propanone	67-64-1	200-662-2	15-40%	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225, H319, H336
n-Butyl Acetate	n-Butyl Ester	123-86-4	204-658-1	7-13%	Flam. Liq. 3 STOT SE 3	H226 H336

Other Product Information

Chemical Identity: Mixture

4.) First Aid Measures

General Advice: If symptoms persist, always call a doctor.

Inhalation First Aid: Remove victim to fresh air and provide oxygen if breathing is difficult. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention immediately.

Skin Contact First Aid: Wash with soap and water. Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.

Eye Contact First Aid: If contact with eyes, immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids open. Get medical attention immediately.

Ingestion First Aid: If swallowed, wash out mouth with water provided the person is conscious. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Most Important Symptoms/Effects: Exposure may cause slight irritation to the skin, eyes, and respiratory tract. Excessive exposure may cause central nervous system effects.

5. Fire Fighting Measures

Flammable Properties: Flammable liquid
Auto Ignition Temperature: Not Available
Suitable extinguishing media: Carbon dioxide, dry chemical, water spray.
Unsuitable extinguishing media: None known

Special hazards arising from the substance or mixture:	None known
Hazardous combustion products:	Carbon dioxide, Carbon monoxide
Fire & Explosion Hazards:	Closed Containers may rupture due to the buildup of pressure from extreme temperatures.
Precautions for fire-fighters:	Use water spray to cool containers exposed to heat or fire to prevent pressure build up. In the event of a fire, wear full protective clothing and NIOSH- approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

PERSONAL PRECAUTIONARY MEASURES:

1) Follow personal protective equipment recommendations found in section 8.
2) Maintain adequate ventilation.

SPILL CLEAN-UP PROCEDURES:

1.) Evacuate unprotected personnel from the area.
2.) Remove sources of ignition if safe to do so.
3.) Pickup spilled materials using non-sparking tools and place in an appropriate container for disposal.
4.) Contain spill to prevent material from entering sewage or ground water systems.
5.) Always dispose of waste materials in accordance with all EU, National and Local Regulations.

7. Handling and Storage

Handling:

Flammable liquid, use in a well ventilated area.
Do not use near sources of ignition.
Do not to eat, drink and smoke while working with this material.
Wash hands after use.

Conditions for safe storage, including any incompatibilities:

Store out of direct sunlight.
Storage Temperature: 32° to 120°F (0° to 49°C).
No known incompatibilities.

8. Exposure Controls / Personal Protection

Appropriate engineering controls:

Ensure adequate ventilation. A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits.
Keep away from sources of ignition.
Take precautionary measures against static discharge.

Personal Protection:

Eye & face protection devices such as safety glasses, safety goggles or face shield are recommended.

Skin protection
Wear the appropriate protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection:
Use only in an adequately ventilated area. For unknown vapor concentrations use a positive-pressure, pressure-demand, self-contained breathing apparatus (SCBA).

Hazardous Ingredient	CAS Number	ACGIH TLV (TWA)	ACGIH TLV (STEL)	OSHA PEL (TWA)	OSHA PEL (STEL)
Aliphatic Hydrocarbon	8052-41-3	100ppm	N/AV	500ppm	N/AV
Zinc Powder	7440-66-6	N/AV	N/AV	N/AV	N/AV
Aliphatic Petroleum Distillates	64742-89-8	N/AV	N/AV	N/AV	N/AV
Acetone	67-64-1	500ppm	750ppm	1000ppm	N/AV
n-Butyl Acetate	123-86-4	150ppm	200ppm	150ppm	N/AV

***Values are based on the 2014 Guide to Occupational Exposure Values by ACGIH**

9. Information on Basic Physical and Chemical Properties

Appearance: Metallic gray	Odor: Hydrocarbon Odor
Odor Threshold: N/AV	pH: Not Applicable (solvent Base)
Melting Point: N/AV	Freezing Point: N/AV
Initial Boiling Point: 133° F(56° C)	Boiling Point Range: N/AV
Flash Point: 48° F (9° C)	Evaporation Rate: Faster than n-Butyl Acetate
Flammability: Flammable liquid	Upper LEL: 0.7% Lower LEL: 15%
Vapor Pressure: N/AV	Vapor Density: Heavier Than Air
Relative Density: N/AV	Solubility: Negligible
Partition Coefficient: n-octanol/ water: N/AV	Auto-ignition Temperature: N/AV
Decomposition Temperature: N/AV	Viscosity: N/AV
Explosive Properties: N/AV	Oxidizing Properties: N/AV

10. Stability & Reactivity

Possibility of hazardous reactions: Hazardous polymerization will not occur under normal conditions
Chemical stability: Stable under normal conditions
Conditions to avoid: Heat and ignition sources
Incompatible materials: Strong Oxidizing Agents
Hazardous decomposition products: Will not occur

11. Toxicological Information

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Repeated overexposure can also damage kidneys, lungs, liver, heart and blood

Routes of exposure: Eyes, skin, ingestion, and/or inhalation

Acute toxicological data:	(Acetone) 5800 mg/kg (Rat-Oral) (Acetone) 21000 ppm/8 hr (Rat-Inha)
Eye irritation data:	N/AV
Skin irritation/sensitization/absorption data:	N/AV
Reproductive toxicity data:	N/AV
Mutagenicity data:	Muta. 1B
Symptoms associated with physical contact:	N/AV
Acute/chronic effects from short/long term exposure:	Irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Not expected to be a skin sensitizer.
Known reportable carcinogens via the following agencies:	
NTP:	N/AV
IARC:	N/AV
OSHA:	TLV-A4

* Petroleum distillates may contain chemical carcinogens in limited quantities (< 0.01%). These quantities are determined by the supplier/fraction/purity of the distillate during the manufacturing process. Chemicals that may be present within distillates are listed on California's prop 65 list such as ETHYLBENZENE, BENZENE, and TOLUENE.

12. Ecological Information

Ecotoxicity: **No Data Available**
Persistence and degradability: **No Data Available**
Bioaccumulative potential: **No Data Available**
Mobility in soil: **No Data Available**
Results of PBT and vPvB assessment: **No Data Available**
Other adverse effects: **No Data Available**

13. Disposal Considerations

Waste Disposal: Dispose of material in accordance with EU, national and local requirements. For proper disposal of used material, an assessment must be completed to determine the proper and permissible waste management options permitted under applicable rules, regulations and/or

laws governing your location.
Product / Packaging disposal: Dispose of packaging in accordance with federal, state and local requirements, regulations and/or laws governing your location.

14. Transportation Information

US DOT

UN Number	Proper Shipping Name	Hazard Class	Packing Group	Marine Pollutant	Special Provisions
UN1263	Paint	3	PGII	Not Applicable	Reference 49 CFR 172.101

IMDG

UN Number	Proper Shipping Name	Hazard Class	Packing Group	Marine Pollutant	Special Provisions
UN1263	Paint	3	PGII	Not Applicable	Reference IMDG code part 3

IATA:

UN Number	Proper Shipping Name	Hazard Class	Packing Group	Marine Pollutant	Special Provisions
UN1263	Paint	3	PGII	Not Applicable	Reference IATA Dangerous Goods Regulation

15. Regulatory Information

Workplace classification:
This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200). The Occupational Safety and Health Administration's interpretation of the product's hazard to workers.
SARA Title 3:
Section 311/312 Categorizations (40 CFR 372): This product is a hazardous chemical under 29 CFR 1910.1200, and is categorized as an immediate and delayed health, and flammability physical hazard. Superfund Amendment and Reauthorization Act (SARA) category. SARA requires reporting any spill of any hazardous substance.
TSCA status: All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.
WHMIS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the (M)SDS contains all of the information required by the CPR.
PROP 65 (CA): WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov.

16. Other Information

Date Prepared/Revised: 9/13/18 Version no.: 03 Supersedes: (9/15/15)

This SDS has been completed in accordance with GHS Rev04 (2011): U.S OSHA, CMA, ANSI, Canadian WHMIS standards, and European Directives.

Date of Preparation/Revision: 9/13/18
Supersedes: (9/15/15)

To the best of our knowledge, the information contained herein is believed to be accurate. However, the above data does not imply any guarantee or warranty of any kind, expressed or implied. The final determination of the suitability of any material is the sole responsibility of the user. All materials made present un-known hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards existing.

1. IDENTIFICATION

Product Identifier	Diesel Fuel
Synonyms:	Diesel Fuel, Motor Vehicle Diesel Fuel, Dyed Diesel, * DieselOne®, * DieselOne® w/Platinum Plus DFX, Low Sulfur Diesel (LSD), Ultra Low Sulfur Diesel (ULSD)
Intended use of the product:	Fuel
Contact:	Global Companies LLC Water Mill Center 800 South St. Waltham, MA 02454-9161 www.globalp.com
Contact Information:	EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300 COMPANY CONTACT (business hours): 800-542-0778

2. HAZARD IDENTIFICATION

According to OSHA 29 CFR 1910.1200 HCS

Classification of the Substance or Mixture

Classification (GHS-US):

Flam. Liquid	Category 3	H226
Skin Corrosion/Irritation	Category 2	H315
Aspiration Hazard	Category 1	H304
STOT SE	Category 3	H336
Carcinogenicity	Category 2	H350
Aquatic Chronic	Category 2	H411
Serious Eye Damage/ Irritation	Category 2B	H319

Labeling Elements

Signal Word (GHS-US):	**Danger**
Hazard Statements (GHS-US):	H226 – Flammable liquid and vapor. H315 – Causes Skin irritation. H304 – May be fatal if swallowed and enters airways. H336 – May cause drowsiness or dizziness. H350 – May cause cancer. H411 – Toxic to aquatic life with long lasting effects. H319 – May cause eye damage/irritation.
Precautionary Statements (GHS-US):	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P233 - Keep container tightly closed. P240 – Ground/bond container and receiving equipment.

P241 – Use explosion-proof electrical/ventilating/lighting equipment pursuant to applicable electrical code.
P242 – Use only non-sparking tools.
P243 – Take precautionary measures against static discharge.
P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 – Wash skin 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.
P303+361+353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse with water/shower.
P308+311 - If exposed or concerned: Get medical advice/attention.
P301+310 - If swallowed: Immediately call a poison center/doctor/…
P331 - Do NOT induce vomiting.
P370+P378 – In case of fire use firefighting foam or other appropriate media for Class B fires to extinguish.
P403+235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 – Dispose of contents/container in accordance with local/regional/national/international regulation.

Other information:

NFPA 704
Health: 1
Fire: 2
Reactivity: 0

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Composition Information
Mixture

Name	Product Identifier (CAS#)	% (w/w)	Classification
Diesel Fuel	68476-34-6	100	Flam Liq. 3, H226; Skin Irrit. 2, H315; Aspiration 1, H304; STOT SE 3, H336; Carc.2. H350; Aquatic chronic 2, H411
Naphthalene	91-20-3	<0.1	Carc. 2, H351; Acute Tox. 4, H302; Aquatic Acute 1, H400; Aquatic Chronic 1, H410

Additional Formulation Information:
Diesel Fuel consists of C9+ hydrocarbons resulting from distillation of crude oil.

Low Sulfur Diesel Fuel typically contains less than 500 ppm of sulfur

Ultra Low Sulfur Diesel Fuel typically contains less than 15 ppm of sulfur

4. FIRST AID MEASURES

Route	Measures
Inhalation	Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

Route	Measures
Ingestion	Aspiration Hazard: 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. 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 failure, and death.
Eye Contact	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. In case of contact lenses, remove immediately.
Skin Contact	Remove contaminated clothing and shoes. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and of the area of the body burned.

Most Important Symptoms
Contact with eyes and face may cause irritation. Long-term exposure may cause dermatitis (itching, irritation, pain and swelling).

Inhalation may cause irritation and significant or long term exposure could cause respiratory insufficiency and pulmonary edema.

Ingestion may cause aspiration, gastrointestinal disturbance, and CNS effects.

Immediate Medical Attention and Special Treatment
For contact with skin or eyes, immediately wash or flush contaminated eyes with gently flowing water. If possible, irrigate each eye continuously with 0.9% saline (NS). If ingested, rinse mouth. Do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

If inhaled, administer oxygen or establish a patent airway if breathing is labored. Suction if necessary. Monitor closely, anticipate seizures. Consider orotracheal or nostracheal intubation of airway control if patient is unconscious or is in severe respiratory distress.

Discard any clothing or shoes contaminated as they may be flammable.

5. FIRE-FIGHTING MEASURES

Extinguishing Media
Foam, carbon dioxide, dry chemical are most suitable

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, C02, water spray, firefighting foam, or Halon. Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment.

LARGE FIRES: Foam, carbon dioxide, dry chemical. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Specific Hazards / Products of Combustion
Moderate fire hazard when exposed to heat or flame with a very low flash point. Product is flammable and easily ignited when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. 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.

Combustion may produce smoke, carbon monoxide and other products of incomplete combustion.

Special Precautions and Protective Equipment for Firefighters
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 firefighting foam.

Fighting Equipment/Instructions
Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full face piece and protective clothing.

Refer to Section 9 for fire properties of this chemical including flash point, auto ignition temperature, and explosive limits.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPCC, SPILL CONTINGENCY or EMERGENCY PLAN.

Personal Precautions
Due to high vapor density, flammable / toxic vapors may be present in low lying areas, dikes, pits, drains, or trenches. Vapors may accumulate in low lying areas and reach ignitable concentrations. Ventilate the area. Use of non-sparking tools and intrinsically safe equipment is recommended. Potential for flammable atmosphere should be monitored using a combustible gas indicator positioned downwind of the spill area. Refer to Sections 2 and 7 for further hazard warnings and handling instructions.

Use appropriate personal protective equipment to prevent eye/skin contact and absorption. Use NIOSH approved respiratory protection, if warranted, to prevent exposures above permissible limits. Refer to Section 8. Contaminated clothing should not be near sources of ignition.

Emergency Measures
As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Consider wind direction. Secure all ignition sources (flame, spark, hot work, hot metal, etc.) from area. Evaluate the direction of product travel, diking sewers, etc. to confirm spill areas. Do not touch or walk-through spilled material. For large spills, isolate initial action distance downwind 1,000 ft. (300 m).

Environmental Precautions
Stop the spill to prevent environmental release if it can be done safely. Product is toxic to aquatic life. Take action to isolate environmental receptors including drains, storm sewers and natural water bodies. Keep on impervious surface if at all possible. Use water sparingly to prevent product from spreading. Foam and absorbents may be used to reduce / prevent airborne release.

Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Follow federal, state or local requirements for reporting environmental release where necessary. Refer to Section 15 for further information.

Containment and Clean-Up Methods
Carefully contain and stop the source of the spill, if safe to do so. 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 firefighting 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.

Take up with dry earth, sand or other non-combustible, inert oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container with clean, non-sparking tools for reclamation or disposal. Response and cleanup crews must be properly trained and must utilize proper protective equipment. Refer to Section 8 for appropriate protective equipment.

7. HANDLING AND STORAGE

USE ONLY AS A FUEL.
DO NOT SIPHON BY MOUTH.

Handling Precautions
Handle as a flammable liquid. Keep away from heat, sparks, and open flame. No smoking. Electrical equipment should be approved for classified area. Bond and ground containers during product transfer pursuant to NFPA 70 and API RP 2003 to reduce the possibility of static-initiated fire or explosion. Follow precautions to prevent static initiated fire.

Use good personal hygiene practices. Use only with protective equipment specified in Section 8. Avoid repeated and/or prolonged skin exposure. Use only outdoors or in well ventilated areas. 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. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

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 RP 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage

Large quantities of diesel fuel are stored in tanks or portable containers at an ambient storage temperature. Separate from incompatible chemicals (Refer to Section 10) by distance or secondary containment. Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers that are clearly labeled. Label all secondary containers that this material is transferred into with the chemical name and associated hazard(s). Empty product containers or vessels may contain flammable vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Storage tanks should have a venting system. If stored in small containers, the area should be well ventilated, away from ignition sources and protected from potential damage or vehicular traffic. Post “No Smoking” signs in product storage areas. This storage area should comply with NFPA 30 “Flammable and Combustible Liquid Code” or applicable building 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 “Safe Entry and Cleaning of Petroleum Storage Tanks”.

Incompatibles

Keep away from strong oxidizers, ignition sources and heat.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits

Component	CAS #	List	Value
Diesel Fuel	68476-34-6	ACGIH TLV-TWA	100 mg/m3*
Naphthalene	91-20-3	ACGIH TLV-TWA OSHA PEL ACGIH STEL	10 ppm 10 ppm 15 ppm

*Critical effects; Skin; A3; CNS impairment.

Engineering Controls

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Intrinsically safe equipment and non-sparking tools shall be used in circumstances where concentrations may exceed lower flammable limits. Grounding and bonding shall be used to prevent accumulation and discharge of static electricity. Emergency shower and eyewash should be provided in proximity to handling areas in the event of exposure to decontaminate.

Personal Protective Equipment

Exposure	Equipment
Eye / Face	Wear appropriate chemical protective glasses or goggles or face shields to prevent skin and eye contact especially caused from splashing.
Skin	Wear appropriate personal protective clothing to prevent skin contact. Gloves constructed of nitrile, neoprene or PVC are recommended when handling this material. 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.

Exposure	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. 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 and limitations. 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.
Thermal	Product is stored at ambient temperature. No thermal protection is required except for emergency operations involving actual or potential for fire. Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value	
Appearance	Clear or straw-colored liquid. May be dyed red for distribution.	
Odor	Mild characteristic petroleum distillate odor.	
Odor Threshold	<1 ppm	
pH	Not available	
Melting Point	-22 to -0.4 ˚F (-30 to -18 ˚C)	
Boiling Point Range	320 to 690 ˚F (160 to 366 ˚C)	
Flash Point	> 125.6 ˚F (52 ˚C) PMCC	
Evaporation Rate	Slow, varies with conditions	
Flammability	Flammable liquid (OSHA defined)	
Flammable Limits	0.6 % - 6.5%	
Vapor Pressure	0.009 psia @ 70 ˚F	
Vapor Density	> 1	(air=1)
Specific Gravity	0.83-0.86 @ 60 ˚F (16 ˚C)	(water=1)
Solubility	Insoluble in water; miscible with other petroleum solvents.	
Partition Coefficient (N-octanol/water)	Log Kow range of 3.3 to >.6.0	
Autoignition Temperature	494 ˚F (257 ˚C)	
Decomposition Temperature	When heated it emits acrid smoke and irritating vapors.	
Viscosity	<3 cSt	
Percent Volatiles	100	

10. STABILITY AND REACTIVITY

Stability
This is a stable material that is flammable liquid (OSHA/GHS hazard category 3). Stable during transport.

Reactivity
Material is not self-reacting. Flammable concentrations may be present in air. Compound can react with oxidizing materials.

Possibility of Hazardous Reactions
Hazardous polymerization will not occur.

Incompatibility
Keep away from strong oxidizers such as nitric and sulfuric acids.

Conditions to Avoid
Avoid high temperatures, open flames, sparks, static electricity, welding, smoking and other ignition sources.

Hazardous Decomposition Products
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:
Acute Toxicity (Inhalation LC50)
Diesel Fuel (68476-34-6)
LC50 Inhalation Rat >6 mg/l/4h

Acute Toxicity (Dermal LD50)
Diesel Fuel (68476-34-6)
LD50 Dermal Rabbit >5000 mg/kg

Acute Toxicity (Oral LD50)
Diesel Fuel (68476-34-6)
LD50 Oral Rabbit >5000 mg/kg

Skin Corrosion/Irritation: Prolonged and repeated contact may cause skin irritation leading to dermatitis. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: OSHA: NO, IARC: Group 3, NTP: NO, ACGIH: NOIC:A3, NIOSH: NO

IARC: Group 3 – Not classifiable as to their carcinogenicity to humans ACGIH: A3 – Confirmed animal carcinogen with unknown relevance to humans

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.

IARC classifies whole diesel fuel exhaust particulates (byproduct of combustion of this material) carcinogenic to humans (Group 1) and NIOSH regards diesel fuel exhaust particulate as a potential occupational carcinogen.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Specific Target Organ Toxicity (Single Exposure): Inhalation exposure may cause drowsiness or dizziness by inhalation exposure.

Aspiration 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.

Potential Health Effects: Vapor irritating to skin, eyes, nose, and throat. 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.

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.

12. ECOLOGICAL INFORMATION

Toxicity:
This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Data for Component: Diesel Fuel (68476-34-6)

Material is toxic to aquatic organisms based on an acute basis (LC50/EC50 >1 but ≤ 10 mg/L in the most sensitive species tested).

Material is a long-term aquatic hazard based on a chronic basis (LC50/EC50 >1 but ≤ 10 mg/L in the most sensitive species tested).

Persistence and Degradation: This material is not expected to be readily biodegradable.

Bioaccumulative Potential: Not available

Mobility in Soil: Not available

Other Adverse Effects: None known

Other Information: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options. May be considered a hazardous waste if disposed. Direct solid waste (landfill) or incineration at a solid waste facility is not permissible. Do not discharge to sanitary or storm sewer. Personnel handling waste containers should follow precautions provided in this document.

Shipping containers must be DOT authorized packages. Follow licensure and regulations for transport of hazardous material and hazardous waste as applicable.

14. TRANSPORT INFORMATION

US DOT

UN Identification Number	NA 1993
Proper Shipping Name	Diesel fuel
Hazard Class and Packing Group	3, PGIII
Shipping Label	Flammable liquid
Placard / Bulk Package	Flammable liquid, 1993
Emergency Response Guidebook Guide Number	128

This product may be re-classified as a “Combustible Liquid” meeting the definition in 49 CFR 173.120 unless transported by vessel or aircraft.
Specific placard requirements must be met for shipments of this product as a Combustible Liquid by rail (See 49 CFR 172.332).
Non-bulk packages (<= 119 gal) of Combustible Liquids in package sizes less than the product reportable quantity are not regulated as hazardous materials if the material does not meet any other hazard class.

IATA Information

UN Identification Number	UN 1202
Proper Shipping Name	Diesel fuel
Hazard Class and Packing Group	3, PGIII
ICAO Label	3
Packing Instructions Cargo	310
Max Quantity Per Package Cargo	220L
Packing Instructions Passenger	309Y
Max Quantity per Package Passenger	60L

ICAO

UN Identification Number	UN 1202
Shipping Name / Description	Diesel fuel
Hazard Class and Packing Group	3, PG III
IMDG Label	3

IMDG

UN Identification Number	UN 1202
Shipping Name / Description	Diesel fuel
Hazard Class and Packing Group	3, PGIII
IMDG Label	3
EmS Number	F-E-S-E
Marine Pollutant	Yes

15. REGULATORY INFORMATION

U.S. Federal, State, and Local Regulatory Information
Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning And Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	Yes
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Clean Water Act (Oil Spills)
Any spill or release of this product to “navigable waters” (Essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA Section 103 and SARA Section 304 (Release to the Environment)
The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts this material. This product does not contain any chemicals subject to the reporting requirements of CERCLA Section 103 or SARA 304.

SARA Section 313- Supplier Notification
This product does not contain any chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

EPA Notification (Oil Spills)
If the there is a discharge of more than 1,000-gallons of oil into or upon navigable waters of the United States, or if it is the second spill event of 42 gallons or more of oil into water within a twelve (12) month period, a written report must be submitted to the Regional Administrator of the EPA within sixty days of the event.

Pennsylvania Right to Know Hazardous Substance list:
The following product components are cited in the Pennsylvania Special Hazardous Substance List, and are present at levels which require reporting.

Component	CAS	Amount
Diesel Fuel	68476-34-6	100%

New Jersey Right to Know Hazardous Substance list:
The following product components are cited in the New Jersey Right to Know Hazardous Substance List, and are present at levels which require reporting.

Component	CAS	Amount
Diesel Fuel	68476-34-6	100%

California Proposition 65 WARNING: This product contains chemicals known to the State of California to cause Cancer or Reproductive Toxicity.

Component	CAS	Amount
Naphthalene	91-20-3	<0.1%

U.S. Toxic Substances Control Act
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

CEPA - Domestic Substances List (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Canadian Regulatory Information (WHMIS)
Class B3 – Combustible Liquid
Class D2A – Materials causing other toxic effects. (Very Toxic)

16. OTHER INFORMATION

Version	5
Issue Date	June 26, 2019
Prior Issue Date	May 20, 2016

Description of Revisions
Update viscosity information in Section 9. Update transportation information in Section 14 to clarify US DOT re-classification option as a Combustible Liquid.

Abbreviations

˚F	Degrees Fahrenheit (temperature)
<	Less than
=	Equal to
>	Greater than
AP	Approximately
C	Centigrade (temperature)
kg	Kilogram
L	Liter
mg	Milligrams
mL	Milliliter
mm^2	Square millimeters
mmHg	Millimeters of mercury (pressure)
N/A	Not applicable
N/D	Not determined
ppm	Parts per million
sec	Second
ug	Micrograms

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
AL	Action Level
ANSI	American National Standards Institute
API	American Petroleum Institute
CAS	Chemical Abstract Service
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation
EC50	Ecological concentration 50%
EPA	U.S. Environmental Protection Agency
ERPG	Emergency Response Planning Guideline
GHS	Global Harmonized System

HMIS	Hazardous Materials Information System
IARC	International Agency for Research On Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
Koc	Soil Organic Carbon
LC50	Lethal concentration 50%
LD50	Lethal dose 50%
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act Reauthorization Act of 1986 Title III
REL	Recommended Exposure Limit (NIOSH)
RVP	Reid Vapor Pressure
SARA	Superfund Amendments and
SCBA	Self Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
UN	United Nations
UNECE	United Nations Economic Commission for Europe
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System

Disclaimer of Expressed and Implied Warranties

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 Safety Data Sheet **

SAFETY DATA SHEET

SDS Name:	Zinc – SHG, HG

1. Identification of the substance or mixture and the Supplier

Identification of the substance or preparation

Product Name	Special High Grade Zinc, High Grade Zinc
Common/Trade Name	SHG, SHG Zinc (Zinc Ingot, Zinc Jumbo, Zinc Sow, Zinc Shot, Ball Anode), HG Zinc
Use of the substance/preparation	Galvanizing, Produce Metal Alloys for Die Casting, Plating
Supplier	Eastern Alloys, Inc. Henry Henning Drive Maybrook, NY 12543 (845) 427-2151 www.eazall.com
Emergency Telephone #	845-427-2151
Emergency contact	J. Malmgreen

2. Hazard Identification

- **Classification:** None.
- **GHS Label Elements:** None.
- **Other Hazards:**
  - Burn hazard upon heating
  - Respiratory hazard from dust upon cutting or grinding
  - Presence of moisture during melting carries risk of explosion
  - Fume inhalation hazard upon melting

3. Composition/Information on Ingredients

Ingredient Name	CAS #	%	EC #	Classification
Zinc (Zn) (SHG)	7440-66-6	99.990	231-175-3	None
Zinc (Zn) (HG)	7440-66-6	99.95	231-175-3	None

4. First Aid Measures

- **After inhalation:** After inhalation of fume: Remove the victim into fresh air: Respiratory problems: consult a doctor/medical service
- **Skin contact:** In case of burns: Wash immediately with lots of water (15 minutes)/shower; Remove clothing while washing; Do not tear off solidified product from the skin; Do not remove clothing if it sticks to the skin; Cover wounds with sterile bandage
  - Consult a doctor/medical service
  - If burned surface > 10% of body, take victim to hospital
- **Eye contact:** Rinse immediately with plenty of water for 15 minutes
  - Take victim to an ophthalmologist
- **After ingestion:** Not applicable

5. Fire-Fighting Measures

- **Suitable extinguishing media:** Use an extinguishing agent suitable for the surrounding fire. Typically, apply dry chemical, dry sand, or special powder extinguishing (Class D) media. Do NOT use water, carbon dioxide or foam on

molten metals. Water may be ineffective for extinguishing a fire but should be used to keep fire exposed billets, ingots and castings cool.

- **Unsuitable extinguishing media:** If molten: no water
- **Special exposure hazards:** On burning formation of metallic fumes (zinc oxide)
  In molten state: violent to explosive reaction with water (moisture)
- **Instructions:** Dilute toxic gases with water spray
  In case of metal bath fire: add metal blocks
  When cooling/extinguishing: no water in the substance
- **Special protective equipment for fire-fighters:** Gloves; Protective clothing
  Heat/fire exposure: compressed air/oxygen apparatus

6. Accidental Release measures

- **Personal precautions (PPE):**
  - Respiratory protection from dust production: dust mask
  - Hand protection: gloves
  - Eye protection: safety eyewear
- **Skin protection:** protective clothing
- **Environmental precautions:** Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.
- **Methods for cleaning up:** If melted: allow liquid to solidify before taking it up
  - Pick up the material; wash clothing and equipment after handling

7. Handling and Storage

- **Handling:** Avoid raising dust; Observe strict hygiene; Keep away from naked flames/heat
  - On melting down: dry and preheat before use
  - Add only dry material to the metal bath
- **Safe storage requirements:**
  - Store in a dry area
  - Keep at temperature above dew point
  - Keep away from strong acids

8. Exposure Controls/Personal Protection

Exposure Limits

Ingredient Name	Occupational Exposure Limits
Zinc	**ACGIH TLV (United States, 1/2005).** TWA: 10 mg/m^3 8 hour/hours. Form: Particulates (Insoluble) Not Otherwise Specified (PNOS)

Exposure Controls/Personal Protection

- **Exposure controls:**
  - Carry out operations in well ventilated areas or with respiratory protection
  - Personal protective equipment:
    - Respiratory protection from dust production: dust mask
    - Hand protection: gloves; on heating: insulated gloves
    - Eye protection: safety eyewear; on (re)melting: face shield & goggles/safety glasses
    - Skin protection: protective clothing; on (re)melting: heat resistant clothing, safety footwear

SAFETY DATA SHEET

9. Physical and Chemical Properties

General Information

Physical Form	Solid
Odor	None
Color	Silver Gray

Important Health, Safety, and Environmental information

Boiling Point	907°C (1665 °F)
Melting Point	419.5 °C (787 °F)
Density	7.14 g/cm^3
Solubility	Insoluble in water; soluble in acids
Flash Point	Not Applicable
Explosive Properties	Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

10. Stability and Reactivity

- **Conditions to avoid:**
  - Possible fire hazard: heat sources
  - Stability: Stable under normal conditions
  - Reactions: In molten state: violent to explosive reaction with water (moisture)
  - Oxidizes slowly in moist air
- **Materials to avoid:**
  - Strong acids
- **Hazardous decomposition products:**
  - Reacts with some acids: release of highly flammable gases/vapors (hydrogen)
  - On burning formation of metallic fumes (zinc oxide)

11. Toxicological information - No test data on the mixture available

- **Acute toxicity:** No (test)data on the mixture available.

Ingredient name	Test	Result	Route	Species
Zinc	LD50	2000 mg/kg	Oral	Rat
Zinc	LDLo	388 mg/kg	Oral	Duck

- **Potential chronic health effects**

  Inhalation:

  AFTER INHALATION OF DUST: Irritation of the nasal mucous membranes, dry/sore throat, coughing

  AFTER INHALATION OF FUMES: Inhalation of fumes or very fine dust may lead to metal fever, a flu-like syndrome with symptoms of fever, chills, malaise and cough. The syndrome is benign and symptoms usually disappear after a few hours. Symptoms include: Feeling of weakness, vomiting, and nausea

  Skin contact: In molten state: Burns

  Eye contact: In molten state: Burns

  Ingestion: No data available

12. Ecological Information

- Ecotoxicity - No test data on the mixture available

Ingredient name	Species	Period (hours)	Result
Zinc	Daphnia magna (EC50)	48	2.8 mg/l
	Pimephales promelas (LC50)	96	0.238 mg/l
	Oncorhynchus mykiss (LC50)	96	0.24 mg/l
	Oncorhynchus mykiss (LC50)	96	0.41 mg/l
	Oncorhynchus mykiss (LC50)	96	0.56 mg/l
	Daphnia magna (LC50)	96	0.57 mg/l

- **Mobility:**
  Volatile organic compounds (VOC) Not applicable
  Solubility in/reaction with water Literature reports: insoluble in water
  Substance sinks in water
- **Persistence and degradability:**
  BOD20: Not applicable
  Biodegradability: not applicable
- **Bioaccumulative potential:**
  No bioaccumulation data available
- **Results of PBT assessment:**
  Not applicable, based on available data
- **Other adverse effects:**
  Not dangerous for the ozone layer (1999/45/EC)

13. Disposal Considerations

- **Provisions relating to waste:**
  Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.
  Waste material code (Directive 2008/98/EC, decision 2001/118/EC) 11 01 99: wastes not otherwise specified
  Can be considered as non-hazardous waste according to Directive 2008/98/EC
- **Disposal methods:**
  The generation of waste should be avoided or minimized wherever possible.
  Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
  Recycle/reuse. Remove waste in accordance with local and/or national regulations
- **Packaging/Container:** No available data.

14. Transportation information

- **US / Canada regulations**
  U.S. DOT and Transport Canada Hazard Classification ..... Not applicable
  U.S. DOT and Transport Canada Product Identification Number ..... Not applicable
  Marine Pollutant ..... No
  IMO Classification ..... Not regulated
- **International transport regulations**
  ADR/RID: Not regulated
  ADNR: Not regulated
  IMO/IMDG: Not regulated
  IATA Class: Not regulated

15. Regulatory Information

- **U.S.**
  Ingredients Listed on TSCA Inventory ..... Yes
  Hazardous Under Hazard Communication Standard ..... No Ingredients Qualify
  CERCLA Section 103 Hazardous Substances ..... Zinc ..... Yes ..... RQ: 1,000 lbs. (454 kg.)*
  * reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).
  EPCRA Section 302 Extremely Hazardous Substance: ..... No Ingredients Qualify
  EPCRA Section 311/312 Hazard Categories: ..... No Hazard Categories Apply
  EPCRA Section 313 Toxic Release Inventory: ..... This product does not contain any toxic chemicals subject to the Toxic Release reporting requirements. However, potential by-products from working with this product, "Zinc (Fume or Dust)" CAS 7440-66-6 is reportable.

- **CANADIAN:**
  Ingredients Listed on DSL: .... Yes
  WHMIS Classification: ..... In ingot form, this product is not a Controlled Product under the CPR.
- **EUROPEAN UNION:**
  Ingredients Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS): ..... Yes
- **EU GHS CLP Classification:** ..... zinc is not classified.

16. Other Information

History

Date of issue	6/17/14
Revision date	6/18/14
Revision #	001

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.
Each of the products covered by this document is considered an article in its final form and not subject to the requirements for classification or labeling under 29 CFR 1910.1200.

Notice to Reader

To the best of our knowledge, the information contained in this Safety Data Sheet is accurate and reliable and reasonable precautions have been taken in the preparation of the data contained herein. It is offered solely for your information, consideration and investigation. Eastern Alloys, Inc. and its subsidiaries extend no warranty and assume no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. This Safety Data Sheet shall not constitute a guarantee for any specific product features. Determination of suitability of this material is the sole responsibility of the user. All materials may present unknown hazards and should be used and handled with caution and following reasonable safety procedures. Consequently the buyer assumes all risks in connection with the use and handling of this material.

Safety Data Sheet

1. IDENTIFICATION

Manufactured By: Custom Color & Filling, LLC
250 North Progress Drive
Saukville, WI 53080

Date Issued: 08/12/2015

Product Use/Class: Exact Match Touch – Up Paint

24 Hour Emergency Telephone Number: 800-373-7542 Domestic 1-484-951-2432 Intl.

Product Name: **DBS5-00003 BLACK AEROSOL**

Product Identifier: **10309 00106 DBS5-00003 BLACK**

2. HAZARD (S) IDENTIFICATION

EMERGENCY OVERVIEW: Contents Under Pressure. Vapors may cause flash fire or explosion. Extremely flammable liquid and vapor. Harmful if swallowed. 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
Hazard statements Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
Causes skin irritation.
Causes serious eye irritation.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Obtain special instructions before use.
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.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container in accordance with local/regional/national/international regulations.

3 Composition/information on ingredients

Chemical Name	**CAS No.**	**Weight %**
Liquefied Petroleum Gas	68476-86-8	10 – 25%
Acetone	67-64-1	10 – 25%
Xylene	1330-20-7	1 – 5%
Toluene	108-88-3	1 – 5%
Ethylbenzene	100-41-4	1 – 5%
Methy Ethel Ketoxime	92-29-7	1 – 5%

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

Fire-fighting measures

Extinguishing agents:	CO2, extinguishing powder or water spray. Fight larger fires with water spray.
Special hazards:	Can form explosive gas-air mixtures.
Protective equipment for firefighters:	A respiratory protective device may be necessary

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 non-sparking 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 & 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.

HMIS Rating
Health 3, Flammability 4, Physical Hazard 0, Personal Protection G

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks.

8. Exposure Controls/Personal Protection

CAS #67-64-1 Acetone		Weight %: 20 – 50 Footnote (1)
ACGIH TLV: 500 ppm TWA OSHA PEL: 1000 ppm TWA VAPOR PRESSURE: 185 MM Hg60F	ACGIH STEL: 1000 ppm OSHA CEILING: LEL: 2.6%	OSHA PEAK:
CAS #75-28-5 Isobutane		Weight %: 5 - 20
ACGIH TLV: NE OSHA PEL: NE VAPOR PRESSURE: 3.1 atm	ACGIH STEL: OSHA CEILING: LEL: 1.6%	OSHA PEAK:
CAS # 74-98-6 Propane		Weight %: 5 -20
ACGIH TLV: 2500 ppm TWA OSHA PEL: 1000 ppm TWA VAPOR PRESSURE: 7150mmHg@20c	ACGIH STEL: OSHA CEILING: LEL:	OSHA PEAK:
CAS # 1330-20-7 Xylene		Weight %: 5 – 20 Footnote (1)
ACGIH TLV: 100 ppm TWA OSHA PEL: 100 ppm TWA VAPOR PRESSURE: 6.6mmHg@20c	ACGIH STEL: 150 ppm OSHA CEILING: LEL: 1%	OSHA PEAK:
CAS # 100-41-4 Ethyl Benzene		Weight %: 1 - 5
ACGIH TLV: 100 ppm TWA OSHA PEL: 100 ppm TWA VAPOR PRESSURE:	ACGIH STEL: 125 ppm OSHA CEILING: LEL:	OSHA PEAK:
CAS # 123-42-2 Diacetone Alcohol		Weight %: 1 - 5 Footnote (1)
ACGIH TLV: 50 ppm TWA OSHA PEL: 50 ppm TWA VAPOR PRESSURE: 1 mm	ACGIH STEL: 75 ppm OSHA CEILING: LEL: 1.8%	OSHA PEAK:
CAS #64742-95-6 Aromatic 100		Weight %: 1 - 5 Footnote (1)
ACGIH TLV:	ACGIH STEL:	OSHA PEAK:

OSHA PEL: VAPOR PRESSURE: 2.7 mmHg@20c	OSHA CEILING: LEL: 0.9%	

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:	0.932	pH:	N.A.
Freeze Point, °C:	N.D.	Viscosity:	N.D.
Solubility in Water:	Slight	Partition Coefficient, water:	n-octanol/ No Information
Decompostion Temp., °C:	No Information		
Boiling Range, °C:	-34 - 415	Explosive Limits, vol%:	0.7 - 13.0
Flammability:	Supports 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: May be absorbed through the skin in harmful amounts. Prolonged or repeated contact may cause skin irritation. Substance may cause slight skin irritation. May cause skin irritation. Allergic reactions are possible.
EFFECTS OF OVEREXPOSURE - INHALATION: High vapor concentrations are irritating to the eyes, nose, throat and lungs. Avoid Page 4 / 7 Date Printed: 9/11/2014 breathing fumes, spray, vapors, or mist. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Harmful if inhaled. 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.

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:

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
64742-89-8	Aliphatic Hydrocarbon	N.I.	3000 mg/kg Rabbit	N.I.
108-88-3	Toluene	636 mg/kg Rat	8390 mg/kg Rabbit	12.5 mg/Rat
64742-49-0	Naphtha, Petroleum, Hydrotreated Light	>5000 mg/kg Rat	>3160 mg/kg Rabbit	N.I.
64742-88-7	Mineral Spirits	>5000 mg/kg Rat	3000 mg/kg Rabbit	>5.28 mg/Rat
1330-20-7	Xylene	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

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

Please consult 49CFR and IATA regulations to ensure that shipments comply with all rules and regulations.

15. Regulatory Information

Disposal should be made in accordance with local, state and federal regulations.

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

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

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

Safety Data Sheet

1. Product and Company Identification

Product Identifier: **Hand Sanitizer**

Manufacturer/Supplier Information:
Millennium Mat Company
3200 Shawnee Industrial Way
Suwanee, Georgia, 30024
Phone: 678-482-5623

Additional Information Contact: SDS Compliance Department

Emergency contact:
Company (24HR): 704-392-4293
CHEMTREC: 800-424-9300

2. Hazards Identification

Information in accordance with 29 CFR 1910.1200 (Hazcom 2012) in effect on May 25, 2012:
Classification of the chemical in accordance with 29 CFR 1910.1200(d):

Route of Entry: Eyes; Ingestion; Inhalation; Skin;
Skin Contact: Wash the affected area thoroughly with plenty of soap and water if irritation occurs
Eye Contact: Any material that contacts the eye should be washed out immediately with water.
Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Call a POISON CENTER/doctor/ physician if you feel unwell
Inhalation: If affected, remove to fresh air. Get medical attention if symptoms occur.

GHS Classification: Classified as hazardous using GHS hazard class.
GHS Label elements and in accordance with 29 CFR 1910.1200(f):

Hazard pictogram(s):

Signal word: Danger
Hazard statements:
H225: Highly flammable liquid and vapor
H316: Causes mild skin irritation
H319: Causes serious eye irritation
H336: May cause drowsiness or dizziness

Precautionary statements: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Take precautionary measures against static discharges. Do not breathe fumes/mist/vapors/spray. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Call a POISON CENTER/doctor/ physician if you feel unwell. Use only in a well-ventilated area. Store locked up.

Information in accordance with 29 CFR 1910.1200 in effect before May 25, 2012:
Potential physical and environmental effects: None known.

HMIS Rating:	Health: 1	Fire: 3	Reactivity: 0	PPE: x

2. Hazards Identification continued

Prevention

Wear protective gloves/protective clothing/eye protection/face protection when transferring to smaller containers for use. Do not eat, drink or smoke when using this product. Do not breathe mist or vapor.

Response

If swallowed: Rinse mouth. Do NOT induce vomiting. For large consumptions, Call a POISON CENTER/ doctor/physician if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If skin irritation occurs, wash thoroughly after handling. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: rinse mouth. Do NOT induce vomiting. For large consumptions Call a POISON CENTER/doctor/physician. If spilled: Absorb spillage with inert material and dispose of in a safe manner.

Storage Store locked up.

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

3. Composition / Information on Ingredients

Chemical Name	CAS No.	Volume
Ethanol	64-17-5	80.00
Poly Acrylic Acid	9003-01-4	0.36
Water	7732-18-5	18.8486
Glycerin	56-81-5	0.79
Hydrogen Peroxide	7722-84-1	0.0014

4. First Aid Measures

Description of first aid measures:

General: If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

Skin contact: Wash the affected area thoroughly with plenty of soap and water. Get medical attention if symptoms occur.

Inhalation: If affected, remove to fresh air. Get medical attention if symptoms occur.

Ingestion: Get medical attention if symptoms occur.

Protection of first aid responders: Wear proper personal protective clothing and equipment.
Most important symptoms and effects, both acute and delayed: Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. See section 11 for additional information.

Indication of any immediate medical attention and special treatment needed, if necessary:
Treat symptomatically.

5. Fire Fighting Measure

Extinguishing media:

Suitable: Use water spray, ABC dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures.

Unsuitable: None known.

Special hazards arising from the chemical:
Unusual fire/explosion hazards: Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat.

Hazardous combustion products: Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See section 10 (Hazardous decomposition products) for additional information.

Special protective equipment and precautions for fire-fighters: Wear self-contained breathing apparatus (SCBA) equipped with a full face piece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing.

Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

6. Accidental Release and Measure

Personal precautions, protective equipment and emergency procedures:
See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources.

Environmental precautions: Methods and materials for containment and cleaning up: Contain by dikes with sand, earth or other non-combustible material.

7. Handling and Storage

Precautions for safe handling: As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye and skin contact. Avoid inhalation of aerosol, mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area.

Conditions for safe storage, including any incompatibilities: Store cool and dry, under well-ventilated conditions. Store this material away from incompatible substances (see section 10). Do not allow product to freeze. Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use.

Empty container contains residual product which may exhibit hazards of product. Do not reuse container.

8. Exposure Controls / Personal Protection

Work place occupational exposure limits and use

Ingredient	Cas #	Form Exposure Value	Permissible exposure limit	Organization
Ethanol	64-17-5	TWA	1000 ppm 1,900 mg/m3	NIOSH
		STEL	1000 PPM	OSHA

Personal Protective Equipment (PPE): For large quantity transfers

Hand Protection: Chemical Resistant Gloves

Eye Protection: Chemical Goggles or Glasses with side shields

Skin Protection: Wear Protective Clothing

Respiratory Protection: The use of a NIOSH approved respirator protection maybe needed if working in a poor ventilated area. Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume vapor or dust exceed the applicable exposure limit(s) of any chemical substance listed in this SDS. Use respirator in accordance with manufacturer's use limitations and OSHA standard 1910.134 (29CFR).

Engineering Measures/Controls:

Ventilation: Ensure adequate ventilation, especially in confined area

Other measures: Eye wash and safety shower in work area

Exposure controls:

Appropriate engineering controls: Always provide effective general and, when necessary, local exhaust ventilation to draw spray, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS. For personal use adequate indoor ventilation for evaporation of use on hands is needed.

9. Physical and Chemical Properties

Form and Appearance:	Clear to Hazy Liquid	**Odor:**	Alcohol
pH, 1% in Water:	5.0 – 7.0	**Solubility in Water:**	Complete
Boiling Point:	78 - 82 *C	**Flash Point:**	Not Determined
Specific Gravity/Relative Density:	0.85-.0.89 g/ml	**Viscosity:**	1000-10000 Centipoises
Explosive Limit LEL/UEL:	2-13 vol%, 50-335 g/m3	**Vapor Pressure:**	.57hPa,at 20*C
Vapor Density:	1.6 at 20**C**	**Evaporation Rate:**	2.3 (Butyl Acetate=1), 21(Ether=1)

10. Stability and Reactivity

Chemical Stability:	Stable
Conditions to Avoid:	Excessive heat and ignition sources
Possibility of Hazardous reactions:	Hazardous polymerization will not occur
Incompatible Materials:	Avoid contact with strong oxidizing agents, acid and alkalis
Hazardous Decomposition Products:	Thermal decomposition may produce oxides of carbon, carbon monoxide, carbon dioxide and other harmful gases.

11. Toxicological Information

Acute Toxicity Data:

Routes of Exposure:	Eye contact, skin contact, ingestion
Eye Contact:	Direct eye contact may cause irritation
Skin Contact:	Repeated or prolonged contact may cause skin irritation and dermatitis.
Ingestion:	Ingestion may cause poisoning in large quantities.
Inhalation:	Inhalation may cause irritation of the respiratory tract and mucous membranes.
Skin Sensitization:	Not a skin sensitizer.

Acute Toxicity/Effects: Not classified (based on available data, the classification criteria are not met).

ATEmix (oral rat LD50):	5045 mg/kg.
ATEmix (dermal rabbit LD50):	12870 mg/kg.

Oral (LD50):	Acute: > 5000 mg/kg (Rat)
Dermal (LD50):	Acute: > 2000 mg/kg (Rabbit)
Inhalation	72 mg/l 4 hours

11. Toxicological Information

Carcinogenicity: Not Classified **IARC** No **NTP** No **ACGIH** No **OSHA** No

Carcinogenic Status: Not classified

Germ Cell Mutagenicity: Not classified

Reproductive Toxicity: Not classified

Aspiration Hazard: Not classified

Specific Target Organ Toxicity single and repeated Exposure: Not classified

12. Ecological Information

Toxicity: The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and GHS and is not classified as dangerous for the environment, but contains substance(s) dangerous for the environment.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Ethanol	15300.00,Pimephales Promelas	5012,Daphnia magna	275(72hr),Scenedesmus

Persistence and degradability: No specific information available

Bio accumulative potential: No specific information available

Mobility in soil: No specific information available.

13. Disposal Information

Product: Dispose of absorbed material/content and/or container in accordance with local, state, federal and/or international regulations.

Packaging: **Dispose of product** in accordance to local, state and/or federal regulations.

For waste disposal purposes, this product is not known to be defined or designated as hazardous by current provisions of the Federal (EPA) Resource Conservation and Recovery Act (RCRA, 40CFR261). Incinerate waste product when in liquid form (i.e., as supplied) in a properly permitted (approved) incineration facility in accordance with federal, state and local regulations. Liquids cannot be disposed of in a landfill.

See Section 8 for recommendations on the use of personal protective equipment.

14. Transportation Information

US DOT Regulations (Land Transport): (Not regulated in packages less than 119 gallons)

UN Proper Shipping Name: Ethanol, 3

Hazard Class: Flammable Liquid, Class 3

UN Number: 1170

Packing Group: II

Label Required: ETHANOL SOLUTIONS

Other Information: N/A

IMDG

UN Number:	UN1170
UN Proper Shipping Name:	ETHANOL SOLUTIONS
Transport Hazard Class(es)Class(es):	3 Label(s): 3EmSNo.: F-E,S-D
Packing Group:	II
Marine Pollutant:	No

IATA

UN Number:	UN1170
Proper Shipping Name:	ETHANOL SOLUTIONS
Transport Hazard Class(es):	3 Class(es): 3Label(s): 3
Marine Pollutant:	No
Packing Group:	II

15. Regulatory Information

Contents of this MSDS comply with the OSHA standard 29 CFR 1910.1200/ HazCom 2012.

Domestic Regulations

TSCA Status: Components in this material are listed on the TSCA inventory.

CERCLA Hazardous Substances (RQ):

U.S. Superfund Amendments and Reauthorization Act (SARA) - SARA Section 313:
None Known

SARA Section 311/ 312: No hazards categories identified

SARA Section 302 / 304: No components identified

Clean Air Act Section 112(TQ): TQ – Ethanol

State Information:
California Proposition 65: The following component in this product is known to the State of California to cause cancer, birth defects, or other reproductive harm.

None Known

State Right to Know/ Hazardous Substance List The following chemicals are present on one or more Right to Know/ Hazardous Substance Lists for the states of MA, MN, NJ, PA and RI.

Information: None Known

This is not an exhaustive list. For information on listings in other states, please consult that state's RTK/HSL.

U.S. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Reportable Quantity (RQ):

Chemical Name	RQ (lbs)	RQ (kg)
None		

U.S. Superfund Amendments and Reauthorization Act (SARA) - SARA Section 313:
None Known

Mexico Regulations/Legislation: This SDS contains the information required by NOM-018-STPS-2000 Workplace Hazardous Chemical Substances Communication and Identification Standard.

15. Regulatory Information (continued)

Canada regulations/legislation: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
Canadian Workplace Hazardous Material Information System (WHMIS) classification: Not controlled
Canadian Ingredient Disclosure List: None known to be present or none in reportable amounts

Canada Regulations/Legislation: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
Canadian Workplace Hazardous Material Information System (WHMIS) classification: Not controlled
Canadian Ingredient Disclosure List: None known to be present or none in reportable amounts

Chemical inventories:

Regulation	Status
Canadian Domestic Substances List (DSL):	No
Canadian Non-Domestic Substances List (NDSL):	No

16. Other Information

HMIS (Hazardous Materials Identification System) Ratings:

Health: 1 Flammability: 3 Reactivity (Stability): 0 Personal Protection: X

NFPA (National Fire Protection Association) Ratings:

Health: 1 Flammability: 3 Instability: 0

Key: 0=Insignificant; 1=Slight; 2=Moderate; 3=High; 4=Extreme. An asterisk appearing after the HMIS Health numerical rating denotes a chronic hazard.

Key to Abbreviations:
NDA - No data available N/D - Not determined N/A - Not applicable N/E - Not established
IARC- International Agency for Research Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TWA: Time Weighted Average (exposure for 8-hour workday)

Users Responsibility/Disclaimer of Liability:

All information, recommendations and suggestions appearing herein concerning our product are based upon tests and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by CHEMATRON, Inc. as to the effects of such use, the results to be obtained, or the safety and toxicity of the product nor does CHEMATRON, Inc. assume any liability arising out of use by others, or the product referred to herein. The information herein is not to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.

Revision Number: 005.0

Issue date: 12/01/2017

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LOCTITE SF F720 BK known as Color Guard® Black**

IDH number: 338125

Product type: Coating

Item number: 34980

Restriction of Use: None identified

Region: United States

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

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

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
DANGER:	HIGHLY FLAMMABLE LIQUID AND VAPOR. MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. CAUSES SKIN IRRITATION. CAUSES SERIOUS EYE IRRITATION. MAY CAUSE DROWSINESS OR DIZZINESS. MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE.

HAZARD CLASS	HAZARD CATEGORY
FLAMMABLE LIQUID	2
SKIN IRRITATION	2
EYE IRRITATION	2A
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	3
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	2
ASPIRATION HAZARD	1

PICTOGRAM(S)

Precautionary Statements

Prevention: Keep away from heat, sparks, open flames, hot surfaces - no smoking. Keep container tightly closed. No release into water. Use explosion-proof equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe vapors, mist, or spray. Wash affected area thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, eye protection, and face protection.

Response:	IF SWALLOWED: Immediately call a physician or poison control center. If on skin (or hair): Take off immediately all contaminated clothing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if you feel unwell. Do NOT induce vomiting. If skin irritation occurs: Get medical attention. If eye irritation persists: Get medical attention. Take off contaminated clothing. In case of fire: Use foam, dry chemical or carbon dioxide to extinguish.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

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

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Solvent naphtha, petroleum, light aliph.	64742-89-8	30 - 40
n-Hexane	110-54-3	10 - 20
Xylenes	1330-20-7	10 - 20
Acetone	67-64-1	5 - 10
Calcium carbonate	471-34-1	5 - 10
Ethylbenzene	100-41-4	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Carbon black	1333-86-4	0.1 - 1

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

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.
Skin contact:	Remove contaminated clothing and footwear. Immediately flush skin with plenty of water (using soap, if available). Wash clothing before reuse. If symptoms develop and persist, get medical attention.
Eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Never give anything by mouth to an unconscious person. If symptoms develop and persist, get medical attention.
Symptoms:	See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Foam, extinguishing powder, carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	Vapours may accumulate in low or confined areas, travel considerable distance to source of ignition, and flash back.

Hazardous combustion products: Oxides of carbon. Toxic and irritating vapors.

6. ACCIDENTAL RELEASE MEASURES

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

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

Clean-up methods: Remove all sources of ignition. Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a closed container until ready for disposal.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and clothing. Avoid breathing vapors or mists of this product. Keep away from heat, spark and flame.

Storage: For safe storage, store at or below 48 °C (118.4 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Solvent naphtha, petroleum, light aliph.	None	100 ppm (400 mg/m3) PEL	None	None
n-Hexane	50 ppm TWA (SKIN)	500 ppm (1,800 mg/m3) PEL	None	None
Xylenes	100 ppm TWA 150 ppm STEL	100 ppm (435 mg/m3) PEL	None	None
Acetone	250 ppm TWA 500 ppm STEL	1,000 ppm (2,400 mg/m3) PEL	None	None
Calcium carbonate	10 mg/m3 TWA Total dust.	5 mg/m3 PEL Respirable fraction. 15 mg/m3 PEL Total dust.	None	None
Ethylbenzene	20 ppm TWA	100 ppm (435 mg/m3) PEL	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Carbon black	3 mg/m3 TWA Inhalable fraction.	3.5 mg/m3 PEL	None	None

Engineering controls: Use local ventilation if general ventilation is insufficient to maintain vapor concentration below established exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s). A NIOSH-approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where air-purifying respirators may not provide adequate protection.

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

Skin protection:	Chemical resistant, impermeable gloves. Use of Butyl or Nitrile Rubber gloves is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Black
Odor:	Solvent
Odor threshold:	Not available.
pH:	Not available.
Vapor pressure:	185 mm hg (20 °C (68°F))
Boiling point/range:	56.1 - 141.1 °C (133°F - 286°F)
Melting point/ range:	Not available.
Specific gravity:	0.83
Vapor density:	> 1
Vapor density:	> 1
Flash point:	-23 °C (-9.4 °F)
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Greater than butyl acetate.
Solubility in water:	Insoluble
Partition coefficient (n-octanol/water):	Not available.
VOC content:	67.0 %; 556 g/l
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of storage and use.
Hazardous reactions:	Will not occur.
Hazardous decomposition products:	Oxides of carbon. Irritating organic vapours.
Incompatible materials:	Strong acids and strong bases. Strong oxidizing agents. Amines. Alkali metals. Halogenated compounds.
Reactivity:	Not available.
Conditions to avoid:	Heat, flames, sparks and other sources of ignition. Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

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

Potential Health Effects/Symptoms

Inhalation: Vapors may cause headaches, nausea, dizziness and respiratory tract irritation. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Prolonged exposure to solvents may cause adverse effects to the liver, urinary, and reproductive systems.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

Ingestion: Principal hazard of ingestion is aspiration into the lungs and subsequent pneumonitis. Central nervous system depression, including dizziness, drowsiness, fatigue, nausea, headache, unconsciousness.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Solvent naphtha, petroleum, light aliph.	None	Irritant
n-Hexane	Oral LD50 (Rat) = 28,710 mg/kg Dermal LD50 (Rabbit) = > 2,000 mg/kg Inhalation LC50 (Rat, 4 h) = 73860 ppm	Developmental, Irritant, Lung, Nervous System, Reproductive
Xylenes	Oral LD50 (Mouse) = 1,590 mg/kg Oral LD50 (Rat) = 6,670 mg/kg Oral LD50 (Rat) = 3,523 - 8,600 mg/kg Oral LD50 (Mouse) = 5,627 mg/kg Oral LD50 (Rat) = 4,300 mg/kg Dermal LD50 (Rabbit) = > 43 g/kg Inhalation LC50 (Rat, 4 h) = 6,350 mg/l	Cardiac, Central nervous system, Irritant, Kidney, Liver
Acetone	Oral LD50 (Mouse) = 5.2 g/kg Oral LD50 (Mouse) = 3,000 mg/kg Oral LD50 (Rabbit) = 5,340 mg/kg Oral LD50 (Rat) = 5,800 mg/kg Oral LD50 (Rat) = 9,800 mg/kg Dermal LD50 (Rabbit) = 20,000 mg/kg Inhalation LC50 (Rat, 4 h) = 76 mg/l	Central nervous system, Irritant
Calcium carbonate	Oral LD50 (Rat) = 6,450 mg/kg Oral LD50 (Mouse) = 6,450 mg/kg	Nuisance dust
Ethylbenzene	Oral LD50 (Rat) = 5.46 g/kg Oral LD50 (Rat) = 3,500 mg/kg Dermal LD50 (Rabbit) = 17,800 mg/kg	Irritant, Central nervous system
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Carbon black	Oral LD50 (Rat) = > 8,000 mg/kg	Respiratory, Some evidence of carcinogenicity

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Solvent naphtha, petroleum, light aliph.	No	No	No
n-Hexane	No	No	No
Xylenes	No	No	No
Acetone	No	No	No
Calcium carbonate	No	No	No
Ethylbenzene	No	Group 2B	No
Silica, amorphous, fumed, crystal-free	No	No	No
Carbon black	No	Group 2B	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal:	Follow all local, state, federal and provincial regulations for disposal.
Hazardous waste number:	D001: Ignitable. This product may contain traces of: D018: Benzene (Check TCLP Level).

14. TRANSPORT INFORMATION

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

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

Proper shipping name:	Coating solution
Hazard class or division:	3
Identification number:	UN 1139
Packing group:	II
DOT Hazardous Substance(s):	Xylene (mixed), Benzene

International Air Transportation (ICAO/IATA)

Proper shipping name:	Coating solution
Hazard class or division:	3
Identification number:	UN 1139
Packing group:	II

Water Transportation (IMO/IMDG)

Proper shipping name:	COATING SOLUTION
Hazard class or division:	3
Identification number:	UN 1139
Packing group:	II

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimis
CERCLA/SARA Section 302 EHS:	None above reporting de minimis.
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health, Fire
CERCLA/SARA Section 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). n-Hexane (CAS# 110-54-3). Xylenes (CAS# 1330-20-7). Ethylbenzene (CAS# 100-41-4).
CERCLA Reportable quantity:	n-Hexane (CAS# 110-54-3) 5,000 lbs. (2,270 kg) Xylenes (CAS# 1330-20-7) 100 lbs. (45.4 kg) Ethylbenzene (CAS# 100-41-4) 1,000 lbs. (454 kg) Benzene (CAS# 71-43-2) 10 lbs. (4.54 kg)
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

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

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: 2, 3, 8, 11

Prepared by: Product Safety and Regulatory Affairs

Issue date: 12/01/2017

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LUBEZE DRILL CHILL 5GL

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Material name : LUBEZE DRILL CHILL 5GL

Material number : 000000000000137835

Manufacturer or supplier's details

Company : Zep Inc.

Address : 350 Joe Frank Harris Parkway, SE
Emerson, GA 30137

Telephone : 404-352-1680

Emergency telephone numbers		
For SDS Information	:	Compliance Services 1-877-428-9937
For a Medical Emergency	:	877-541-2016 Toll Free - All Calls Recorded
For a Transportation Emergency	:	CHEMTREC: 800-424-9300 - All Calls Recorded. In the District of Columbia 202-483-7616

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	liquid
Colour	amber
Odour	solvent-like

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration [%]
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 90 - < 100

The exact percentages of disclosed substances are withheld as trade secrets.

SECTION 4. FIRST AID MEASURES

General advice	:	Do not leave the victim unattended. Get medical attention. Move out of dangerous area. Show this safety data sheet to the doctor in attendance.
If inhaled	:	If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	If skin irritation persists, call a physician. Wash off with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.
In case of eye contact	:	Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Most important symptoms and effects, both acute and delayed	:	Effects may be delayed, symptoms may include minor eye or skin irritation. Overexposure may cause mild eye or skin irritation.
Notes to physician	:	Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Foam Carbon dioxide (CO2)
Unsuitable extinguishing media	:	High volume water jet
Hazardous combustion products	:	Carbon dioxide (CO2) Carbon monoxide Smoke
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Standard procedure for chemical fires.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.

Environmental precautions : Prevent further leakage or spillage if safe to do so.
Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Store and keep away from bases and alkalies.
Store and keep away from bleach.
Oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	TWA (Mist)	5 mg/m3	OSHA Z-1
		TWA (Inhalable fraction)	5 mg/m3	ACGIH

Engineering measures : effective ventilation in all processing areas

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Hand protection		
Material	:	Protective gloves
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Safety glasses
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	amber
Odour	:	solvent-like
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Boiling point	:	285 °C
Flash point	:	148.8 °C Method: Cleveland open cup
Evaporation rate	:	< 1 No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	0.908 g/cm3
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	partly soluble
Solubility in other solvents	:	partly soluble
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available

Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	52.8 mm2/s (20 °C)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects

Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	Effects may be delayed, symptoms may include minor eye or skin irritation.

Carcinogenicity:

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Acute toxicity

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Acute oral toxicity	:	LD50 Rat: > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 Rat: > 5 mg/l Exposure time: 4 h
Acute dermal toxicity	:	LD50 Rabbit: > 5,000 mg/kg

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water	:	Remarks: No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

Transportation Regulation: 49 CFR (USA):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IMDG (Vessel):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IATA (Cargo Air):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IATA (Passenger Air):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: TDG (Canada):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

The product as delivered to the customer conforms to packaging requirements for shipment by road under US Department of Transportation (DOT) regulations. Additional transportation classifications noted above are for reference only, and not a certification or warranty of the suitability of the packaging for shipment under these alternative transport regulations.

SECTION 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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

California Prop. 65

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

The components of this product are reported in the following inventories:

DSL All components of this product are on the Canadian DSL

TSCA On TSCA Inventory

For information on the country notification status for other regions please contact the manufacturer's regulatory group.

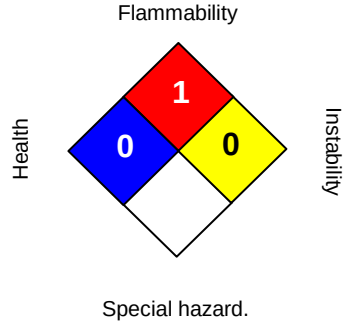
Inventory Acronym and Validity Area Legend:

TSCA (USA), DSL (Canada), NDSL (Canada)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

OSHA - GHS Label Information:

Not a hazardous substance or mixture.

Version:	3.0
Revision Date:	11/12/2018
Print Date:	04/29/2021

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. Users should make their own investigations to determine the suitability and applicability of the information for their particular purposes. This SDS has been prepared by the Compliance Services organization supporting this manufacturer, supplier or distributor.

Zep Inc. markets products under well recognized and established brand names such as Zep®, Zep Commercial®,Zep Professional®, Enforcer®, National Chemical™, Selig™, Misty®, Next Dimension™, Petro®, i-Chem®, TimeMist®, TimeWick™, MicrobeMax®, Country Vet®, Konk®, Original Bike Spirits®, Blue Coral®, Black Magic®, Rain-X®, Niagara National™, FC Forward Chemicals®,Rexodan®, Mykal™, and a number of private labeled brands.

1. Identification of the substance/mixture and of the company

1.1. Product identifier

Product Identity	Packing Saver
Alternate Names	Pump Saver

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

Intended use	Lubricant, process oil
Application Method	Varied

1.3. Details of the supplier of the safety data sheet

Company Name	Delta First 105 Bucknell Court, Suite B Atlanta, GA 30336
Emergency	(800) 982-2325 or 1 404-349-2560

2. Hazard identification of the product

2.1. Classification of the substance or mixture

H304 – Aspiration Hazard – Category 1 Other Hazards: none known

2.2. Label elements

DANGER

H304: May be fatal if swallowed and enters airways
P301 + 310 + 331: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician; Do NOT induce vomiting;
P501: Dispose of contents/container to approved disposal facility

[Prevention]:
No GHS prevention statements

[Response]:
No GHS response statements

[Storage]:
No GHS storage statements

[Disposal]:
No GHS disposal statements

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Distillates (petroleum), hydrotreated heavy paraffinic **CAS Number: 0064742-54-7**	**0-100**		**[1]**
Distillates (petroleum), hydrotreated light paraffinic **CAS Number: 0064742-55-8**	**0-100**		**[1]**

[1] Substance classified with a health or environmental hazard.
[2] Substance with a workplace exposure limit.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Immediately flush the eyes with large amounts of water for at least 15 minutes, alternately lifting the upper and lower eyelids. After 5 minutes, if appropriate, remove contact lenses and continue flushing the eyes for an additional 15 minutes. Call a physician at once.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

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

Overview **Most important symptoms and effects, both acute and delayed:** Inhalation of oil mists or vapors generated at elevated temperatures may cause respiratory irritation. Accidental ingestion can result in minor irritation of the digestive tract, nausea and diarrhea.
Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia.
Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

5. Fire-fighting measures

NFPA 704 Hazard Class **Health: 0** **Flammability: 1** **Instability: 0**

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

5.1. Extinguishing media
Recommended extinguishing media; alcohol resistant foam, CO_2, powder, water spray.
Do not use; water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide and unidentified organic compounds will be evolved when this material undergoes combustion

5.3. Advice for fire-fighters

Firefighting personnel should respond with appropriate protective clothing, firefighting gear, and breathing equipment as trained. All other personnel should exit the area and proceed to a gathering point in an area unaffected by the fire and smoke.
See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

ERG Guide No. 128

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

7. Handling and storage

7.1. Precautions for safe handling

Keep away from flames and hot surfaces. Use good personal hygiene practices and wear appropriate personal protective equipment. Spills will produce very slippery surfaces.

7.2. Conditions for safe storage, including any incompatibilities

Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

Incompatible materials: Strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0064742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic	OSHA	exposure limits for oil mist are 5 mg/m3
		ACGIH	10 mg/m3
		NIOSH	No Established Limit
0064742-55-8	Distillates (petroleum), hydrotreated light paraffinic	OSHA	exposure limits for oil mist are 5 mg/m3
		ACGIH	10 mg/m3
		NIOSH	No Established Limit

Contains mineral oil. The exposure limits for oil mist are 5 mg/m3 OSHA PEL and 10 mg/m3 ACGIH.

Carcinogen Data

CAS No.	Ingredient	Source	Value
0064742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
0064742-55-8	Distillates (petroleum), hydrotreated light paraffinic	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.

Eyes No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Wear overalls to keep skin contact to a minimum. Nitrile rubber gloves should be worn.

Engineering Controls Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Other Work Practices Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

9. Physical and chemical properties

Appearance	Colorless Liquid
Odor	Petroleum Odor
Odor threshold	Not Measured
pH	Not Applicable
Melting point / freezing point	Not Applicable
Initial boiling point and boiling range	> 260 C (500 F)
Flash Point	350 F (177 C) minimum (Cleveland Open Cup)
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (Pa)	< 0.01 mmHg @ 37.8 C (100 F)
Vapor Density	> 1
Specific Gravity	0.84 - 0.87 @ 15.6 C (60.1F) / 15.6 C (60.1 F)
Solubility in Water	Soluble in hydrocarbon solvents, insoluble in water.
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured

Viscosity (cSt)	20 cSt @ 40 C (104 F)
Pour point	-12C (10 F)

DMSO extract by IP346: Less than 3.0 wt %

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

Extended exposure to high temperatures can cause decomposition. Avoid all possible sources of ignition.

10.5. Incompatible materials

Strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

10.6. Hazardous decomposition products

Not anticipated under conditions of normal use.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, g/kg	Skin LD50, g/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, g/L/4hr	Inhalation Gas LD50, ppm
Distillates (petroleum), hydrotreated heavy paraffinic - (64742-54-7)	>5 Rat - Category: 5	>2g/kg Category: 4	No data available	>5 Rat - Category: 5	No data available
Distillates (petroleum), hydrotreated light paraffinic (64742-55-8)	>5 Rat - Category: 5	>2g/kg Category: 4	No data available	>5 Rat - Category: 5	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable

Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. Ecological information

GHS Classification: No classified hazards

12.1. Toxicity

ECOTOXICITY

All acute aquatic toxicity studies on samples of lubricant base oils show acute toxicity values greater than 100mg/l for invertebrates, algae and fish. These tests were carried out on water accommodated fractions and the results are consistent with predicted aquatic toxicity of these substances based on their hydrocarbon compositions. Not classified hazards.

ENVIRONMENTAL FATE This material is considered inherently biodegradable. This material is not expected to present any environmental problems other than those associated with oil spills. This material is not readily biodegradable. See Section 6 for Accidental Release Measures.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Distillates (petroleum), hydrotreated heavy paraffinic - (64742-54-7)	5,000, Oncorhynchus mykiss	1,000, Daphnia magna	Not Available
Distillates (petroleum), hydrotreated light paraffinic (64742-55-8)	Not Available	Not Available	Not Available

12.2. Persistence and degradability

Persistence per IOPC Fund definition: persistent

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment (persistant, bioaccumulative and toxic, very persistent, very bioaccumulative) This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

None expected

13. Disposal considerations

13.1. Waste treatment methods

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.SM.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Applicable		
14.2. UN proper shipping name	PETROLEUM OIL, N.O.I.B.N., NOT REGULATED AS A HAZARDOUS MATERIAL	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	**DOT Hazard Class:** Not Applicable **DOT Label:** ---	**IMDG:** Not Applicable **Sub Class:** Not Applicable	**Air Class:** Not Applicable
14.4. Packing group	Not Applicable	Not Applicable	Not Applicable

14.5. Environmental hazards

IMDG Marine Pollutant: No

14.6. Special precautions for user

No further information

15. Regulatory information

Regulatory Overview	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.
Toxic Substance Control Act (TSCA)	All components of this material are either listed or exempt from listing on the TSCA Inventory.
WHMIS Classification	Not Regulated

US EPA Tier II Hazards

Fire: No **Reactive: No**
Sudden Release of Pressure: No
Delayed (Chronic): No **Immediate (Acute):**No

EPCRA 311/312 Chemicals and RQs: (No Product Ingredients Listed)

EPCRA 302 Extremely Hazardous : (No Product Ingredients Listed)

EPCRA 313 Toxic Chemicals: (No Product Ingredients Listed)

Proposition 65 - Carcinogens (>0.0%): (No Product Ingredients Listed)
Proposition 65 - Developmental Toxins (>0.0%): (No Product Ingredients Listed)
Proposition 65 - Female Repro Toxins (>0.0%): (No Product Ingredients Listed)
Proposition 65 - Male Repro Toxins (>0.0%): (No Product Ingredients Listed)
N.J. RTK Substances (>1%) : (No Product Ingredients Listed)
Penn RTK Substances (>1%) : (No Product Ingredients Listed)

National Chemical Inventories

Chemical name	AICS	DSL	CHINA	EINCS	ENCS	KOREA	PICCS	TSCA	CANADA
Distillates (petroleum), hydrotreated heavy paraffinic - (64742-54-7)	X	X	X	X	X	X	X	X	X

US Export Control Classification Number: EAR99

16. Other information

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 contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

The data on this SDS relates only to the specific material described and does not relate to its use in combination with other materials or in any process

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

End of Document

SAFETY DATA SHEET

Section 1. Identification

Supplier

Applied Maintenance
Supplies & Solutions
12420 Plaza Drive
Cleveland, OH 44130
Tel: 800-458-4018
Fax: 866-802-2739
Web: appliedmss.com

Emergency telephone number: (610)286-2500 (24 Hours) Chemtrec Contract No.: 17567

Product name: Power-Grip® Steel Reinforced Epoxy Putty 190952

Code: FG600451055-24

Specific uses: Sealants and adhesives

Section 2. Hazards identification

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

Classification of the substance or mixture: SKIN SENSITIZATION - Category 1

GHS label elements

Hazard pictograms

Signal word: Warning!

Hazard statements: May cause an allergic skin reaction.

Precautionary statements

- **Prevention**: Wear protective gloves. Avoid breathing dust. Contaminated work clothing should not be allowed out of the workplace.
- **Response**: IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention.
- **Storage**: Not applicable.
- **Disposal**: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified: None known.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Ingredient name	% by weight	CAS number
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	5 - 10	25068-38-6
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	5 - 10	25068-38-6
crystalline silica non-respirable	0.1 - 1	14808-60-7

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

Section 4. First aid measures

Description of necessary first aid measures

Inhalation

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

Skin contact

Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Ingestion

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

Most important symptoms/effects, acute and delayed

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Skin contact May cause an allergic skin reaction.

Eye contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:
irritation
redness

Eye contact No specific data.

Ingestion No specific data.

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

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

Section 4. First aid measures

Specific treatments No specific treatment.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

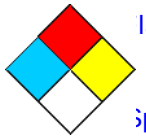
Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire. None known.

Unsuitable extinguishing media

Specific hazards arising from the chemical No specific fire or explosion hazard.

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



Hazardous thermal decomposition products Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides

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

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

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

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

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

Environmental precautions Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill

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

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities

Do not store above the following temperature: 35°C (95°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

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

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	CAS #	Exposure limits
crystalline silica non-respirable	14808-60-7	**OSHA PEL Z3 (United States, 9/2005). Notes: 250/(%SiO2+5)** TWA: 250 MPPCF / (%SiO2+5) 8 hours. Form: Respirable **OSHA PEL Z3 (United States, 9/2005). Notes: 10/(SiO2+2)** TWA: 10 MG/M3 / (%SiO2+2) 8 hours. Form: Respirable **ACGIH TLV (United States, 3/2012).** TWA: 0.025 mg/m^3 8 hours. Form: Respirable fraction **NIOSH REL (United States, 1/2013).** TWA: 0.05 mg/m^3 10 hours. Form: respirable dust **OSHA PEL Z3 (United States, 9/2005). Notes: 30/(%SiO2+2)** TWA: 30 MG/M3 / (%SiO2+2) 8 hours. Form: Total dust.

Appropriate engineering controls

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

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

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Respiratory protection	Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Skin protection	
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Section 9. Physical and chemical properties

Physical state	Solid.
Color	Gray. Black. [Dark]
Odor	Pungent. Sulfurous. [Strong]
Odor threshold	Not available.
pH	Not applicable.
Melting point	Not available.
Boiling point	Not available.
Flash point	Closed cup: >93.3°C (>199.9°F) [Setaflash.] [Product does not sustain combustion.]
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	2.247
Solubility	Easily soluble in the following materials: methanol, diethyl ether and acetone. Soluble in the following materials: n-octanol. Insoluble in the following materials: cold water and hot water.
Solubility in water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	>220°C (>428°F)

Section 9. Physical and chemical properties

Viscosity	Kinematic (room temperature): Not applicable. Kinematic (40°C (104°F)): Not applicable.

Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Incompatible materials	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	LD50 Dermal	Rabbit	23000 mg/kg	-
	LD50 Oral	Rat	>15000 mg/kg	-
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	LD50 Dermal	Rabbit	23000 mg/kg	-
			>15000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	Eyes - Moderate irritant	Mammal - species unspecified	-	-	-
	Skin - Moderate irritant	Mammal - species unspecified	-	-	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	skin	Human	Sensitizing
	skin	Mouse	Sensitizing
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	skin	Human	Sensitizing

Mutagenicity

No specific data.

Carcinogenicity

No specific data.

Section 11. Toxicological information

Conclusion/Summary : This product contains talc in a polymer matrix. Sanding the cured product may release particles containing talc with the polymer and other components of the matrix into the air. The talc contains less than 1% crystalline silica. Appropriate evaluations of the use of the product should be performed to determine if exposure to talc occurs due to handling and use. If such exposures occur, appropriate precautions must be taken to prevent exposure in excess of the OSHA Permissible Exposure Limit (PEL).

Classification

Product/ingredient name	OSHA	IARC	NTP
crystalline silica non-respirable	-	1	Known to be a human carcinogen.

Reproductive toxicity

No specific data.

Teratogenicity

No specific data.

Specific target organ toxicity (single exposure)

No specific data.

Specific target organ toxicity (repeated exposure)

No specific data.

Aspiration hazard

No specific data.

Information on the likely routes of exposure Not available.

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	May cause an allergic skin reaction.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: irritation redness
Ingestion	No specific data.

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

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

Section 11. Toxicological information

No specific data.

General	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	8059.4 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	EC50 11 mg/l	Algae	72 hours
	EC50 1.8 mg/l	Daphnia	48 hours
	Chronic NOEC 0.3 mg/l	Daphnia	21 days
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	EC50 11 mg/l	Aquatic plants	72 hours
	EC50 1.8 mg/l	Daphnia	48 hours
	LC50 2 mg/l	Fish	96 hours
	Chronic NOEC 0.3 mg/l	Daphnia	-

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	OECD 302B 301B Ready Biodegradability - CO_2 Evolution Test	12 % - Not readily - 28 days	-	-
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	OECD 302B 302B Inherent Biodegradability: Zahn-Wellens/ EMPA Test	12 % - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	-	-	Not readily
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	-	-	Not readily

Bioaccumulative potential

No specific data.

Section 12. Ecological information

Mobility in soil

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

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

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

RCRA classification Not applicable.

Section 14. Transport information

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

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

Section 15. Regulatory information

U.S. Federal regulations

TSCA 8(a) PAIR: Siloxanes and Silicones, di-Me, reaction products with silica TSCA 8(a) CDR Exempt/Partial exemption: Not determined

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

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)

Not listed

Clean Air Act Section 602 Class I Substances

Not listed

Clean Air Act Section 602 Class II Substances

Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ

Not applicable.

SARA 311/312

Classification

Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	5 - 10	No.	No.	No.	Yes	No.
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	5 - 10	No.	No.	No.	.	No.
crystalline silica non-respirable	0.1 - 1	No.	No.	No.	Yes	Yes

State regulations

Massachusetts

The following components are listed: SOAPSTONE; MINERAL WOOL FIBER

New York

None of the components are listed.

New Jersey

The following components are listed: SOAPSTONE; SILICA, QUARTZ; QUARTZ (SiO2); FERROSILICON; FERROCERIUM

Pennsylvania

The following components are listed: SOAPSTONE DUST; QUARTZ (SIO2)

Minnesota Hazardous Substances

None of the components are listed.

California Prop. 65

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

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Talc , not containing asbestiform	Yes.	No	No	No
fibres crystalline silica non-respirable	Yes.	.	.	.
carbon black respirable	Yes.	No	No	No

Canada inventory

All components are listed or exempted.

International regulations

Section 15. Regulatory information

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Substances of very high concern

None of the components are listed.

Section 16. Other information

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References

Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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Safety Data Sheet
GHS-Compliant
May be used to comply with
OSHA's Hazard Communication Standard
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

REAGENT CHEMICAL & RESEARCH, INC.
115 US Hwy 202 Ringoes, NJ 08551

PRODUCT IDENTITY
Hydrochloric Acid, 20° or 22° Baume

Safety Data Sheet Revision Date - May 9, 2018

Section 1 - Identification

Product Name Hydrochloric Acid	CAS # 7647-01-0
Synonym Muriatic Acid	Chemical Formula HCl
Chemical Name Hydrochloric Acid Solution	Chemical Family Inorganic Acid
Product Use Acidification, pH Adjustment	
Manufacturer/Supplier Name Reagent Chemical & Research, Inc.	Address 115 US Hwy 202 Ringoes, NJ 08551
General Information 1-908-284-2800	Country United States
Emergency Telephone 1-409-899-3400	Transportation Emergency Number **CHEMTREC** 1-800-424-9300

Section 2 - Hazards Identification

GHS Classification:

HEALTH	**PHYSICAL**
Serious Eye Damage - Category 1	Corrosive to Metals - Category 1
Skin Corrosion - Category 1 B	

Sensitization, Respiratory - Category 1

Specific Target Organ Toxicity (single exposure) - (Respiratory System) - Category 2

Specific Target Organ Toxicity (repeated exposure) - (Respiratory System) - Category 2

GHS Label Elements:

SYMBOLS: corrosion, health hazard

Signal Word: DANGER

Section 2 - Hazards Identification (continued)

GHS Label ELEMENTS:

Hazard Statements

Causes severe skin burns & eye damage

May cause allergic or asthmatic symptoms or breathing difficulties if inhaled

May cause damage to organs (respiratory system) if inhaled

May cause damage to organs (respiratory system) through prolonged or repeated exposure

May be corrosive to metals

Precautionary Statements

PREVENTION

Do not breathe dusts/fume/gas/mist/vapors/spray

Wash face, hands and exposed skin thoroughly after handling

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

In case of inadequate ventilation, wear respiratory protection

Do not eat, drink or smoke when using this product

Keep only in original container

RESPONSE

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

IF ON SKIN(or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Immediately call emergency medical professional or Poison Control Center

Specific treatment (See Section 4)

If in eyes:Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Absorb spillage to prevent material damage

STORAGE

Store locked up

Store in corrosive resistant container/container with resistant inner liner

DISPOSAL

Dispose of contents/container in accordance with federal and state regulations

Section 3 - Composition / Information on Ingredients

Component Description	Percent	CAS #
Hydrogen Chloride	26.00 - 36.95	7647-01-0
Water	63.05 - 74.00	7732-18-5

EXPOSURE LIMITS/REGULATORY INFORMATION

Substance	PEL	TLV	STEL	TWA	CEILING
Hydrogen Chloride	C-7 mg/m3	C-2 ppm	50 ppm	N/D	5 ppm
Water	N/D	N/D	N/D	N/D	N/D

N/D - Not Determined C = Ceiling Level

Section 4 - First Aid Measures

General

If a known exposure occurs or is suspected, immediately initiate the recommended procedures below. Simultaneously contact a physician, or the nearest Poison Control Center. Inform the person contacted of the type and extent of exposure, describe the victim's symptoms and follow the advice given. For additional information, call day or night, Reagent Chemical (409) 899-3400 or Chemtrec (800) 424-9300.

Inhalation

Remove from contaminated atmosphere. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration, which may be supplemented by the use of a bag-mask respirator, or a manually-triggered, oxygen supply capable of delivering 1 liter/second or more. If the victim is breathing, oxygen may be administered from a demand-type or continuous-flow inhalator, preferably with a physician's advice. Contact a physician immediately.

Eye Contact

Immediately flush the eyes with large quantities of running water for 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. DO NOT attempt to neutralize with chemical agents. Obtain medical attention as soon as possible. Oils or ointments should not be used. Continue the flushing for an additional 15 minutes if the physician is not available.

Skin Contact

Immediately remove contaminated clothing under a safety shower. Flush all affected areas with large amounts of water for 15 minutes. DO NOT attempt to neutralize with chemical agents. Obtain medical advice.

Ingestion

DO NOT induce vomiting. Immediately give large quantities of water or milk, if available. If vomiting does occur, give fluids again. Never give anything by mouth to an unconscious person. Call a physician or the nearest Poison Control Center.

Medical Conditions Generally Aggravated by Exposure

Hydrogen Chloride will aggravate breathing disorders

Note to Physician

Attending Physician should treat exposed patients symptomatically

Section 5 - Fire Fighting Measures

Extinguishing Method

Not Applicable, use water to dilute spills and to flush them away from ignition sources.

Unusual Fire and Explosion Hazards

Non-flammable, but Hydrochloric Acid reacts with metals.

Special Firefighting Procedures

Non-flammable, but Hydrochloric Acid reacts with all metals, except gold and platinum, with rapid evolution of Hydrogen which is flammable and explosive in air. Firefighters exposed to Hydrochloric Acid vapors should wear Scott Air-Pak, or equivalent. Hydrogen Chloride vapors are extremely irritating to the respiratory tract and may cause breathing difficulty.

Section 6 - Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled

Spills or discharges into the environment involving large quantities of Hydrochloric Acid should be controlled and cleaned-up according to a pre-determined, affirmative written Spill Prevention and Control Program. For assistance in developing a SPCP contact your nearest Reagent Sales Office. Refer to Section 15 for spill/release reporting information.

Spills should be handled immediately by neutralization and dilution of the spilled product by the use of Soda Ash (Sodium Carbonate), Lime (Calcium Hydroxide), or Limestone (Calcium Carbonate) with large amounts of water. For an interior (inside a closed space) spill be aware that the use of Soda Ash, Lime and Limestone will evolve heat and carbon dioxide and that ample ventilation must be provided.

Waste Disposal

Under Federal RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether the product falls under RCRA as a hazardous waste. This is because product uses, transformations, mixtures, etc. may render the resulting end-product hazardous.

Container Disposal

Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

Section 7 - Handling and Storage

Handling

Chemical goggles and full face shield must be worn at all times by personnel exposed to or handling Hydrochloric Acid. The use of a NIOSH approved cartridge respirator or a Scott Air-Pak should be used by all personnel exposed.

Storage

Store containers in a cool, dry location away from direct sunlight, sources of intense heat, or where freezing may occur. Store material in acid-proof container. Keep container tightly closed when not in use. Keep container away from incompatible materials. All loading, unloading, and storage equipment must be inspected prior to any transfer operations are initiated.

Section 7 - Handling and Storage (continued)

General Comments
Impervious clothing, gloves, footwear and head gear must be worn at all times by personnel exposed to or handling Hydrochloric Acid.

Precautions to be Taken in Handling and Storage
Make sure all personnel involved in housekeeping and spill clean-up follow good Industrial Hygiene practices and wear proper protective equipment.

Section 8 - Exposure Controls / Personal Protection

EXPOSURE LIMITS

Substance	PEL	TLV	STEL	TWA	CEILING
Hydrogen Chloride	C-7 mg/m3	C-5 ppm	50 ppm	N/D	5 ppm
Water	N/D	N/D	N/D	N/D	N/D

N/D - No Data Available C = Ceiling Level

Respiratory Protection
Maintain airborne contaminate levels below listed guidelines. Use with adequate ventilation. Use a mechanical fan or vent area to scrubber. Use NIOSH approved respiratory protection if exposure limits are exceeded.

Ventilation	Local Exhaust If PEL exceeded	Special Vent fumes to appropriate scrubber
	Mechanical (General) If PEL exceeded	Other Not Applicable

Skin Protection
Wear neoprene rubber gloves to minimize skin contact. Additional protection may be necessary to prevent skin contact including use of impervious clothing, face shield, boots or full body protection. A safety shower should be located in the work area.

Eye Protection
Splash goggles or full face respirator. Face shields are recommended. Eye-wash stations should be available where eye contact can occur.

Other Protection
Use body protection appropriate for task. An impervious clothing or other impermeable body protection is suggested. Full body chemical protection is recommended for emergency response procedures.

Section 9 - Physical and Chemical Properties

Boiling Point	230 F	Specific Gravity (H2O = 1)	1.13 - 1.19
Vapor Pressure (mm Hg)	50 - 60 mm	Freezing Point	.-12 F to -63 F
Vapor Density (AIR = 1)	No Data Available	Density	9.48 - 9.61
pH	< 1	Odor Threshold	0.25 - 10 ppm
Flash Point	Not Flammable	Evaporation Rate	No Data Available
Flammability	Not Flammable	Flammability Limits	Not Flammable
Auto Ignition Temperature	Not Flammable	Partition Coefficient	No Data Available
Viscosity (at 15 C)	2.3 mPa.s	Decomposition Temperature	No Data Available

Solubility in Water
miscible

Appearance and Odor
Clear/Slightly yellow with a sharp pungent odor

Section 10 - Stability and Reactivity

Stability			
	Unstable		Conditions to Avoid Hydrochloric Acid is extremely reactive. Avoid contact with
	Stable	X	metal surfaces and oxidizing agents.

Incompatibility (Materials to Avoid)
Hydrochloric Acid is chemically stable when properly contained and handled. It is a strong mineral acid and reacts with many metals and metal oxides and hydroxides to form the equivalent metal chloride. It reacts with zeolites and other silicious compounds to form Hydrosilicic Acid; it reacts with carbonates to form Carbon Dioxide and Water. It is oxidized by Oxygen or electrolysis to form Chlorine, a lethal, poisonous gas. It reacts with alkaline compounds to form a neutral salt. It is a hydrolyzing agent for carbohydrates, esters and other compounds. It's reaction with most metals will produce Hydrogen, an explosive gas. Violent reactions will result when Hydrochloric Acid Reacts with acetic annydride, 2-aminoethanol, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, ethylene diamine, ethylene imine, oleum (fuming sulfuric acid), perchloric acid, beta propiolactone, propylene oxide, sodium hydroxide, sulfuric acid, uranium phosphide and vinyl acetate. This listing is not all-inclusive.

Hazardous Decomposition or By-products
Extreme heat may cause the product to decompose, producing toxic fumes which may include chlorine compounds.

Hazardous Polymerization			
	May Occur		Conditions to Avoid Extreme heat and contact with incompatible materials
	Will Not Occur	X	

Section 11 - Toxicological Information

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Yes	Yes	Yes

Health Hazards (Acute and Chronic)
Hydrogen Chloride, both as a gas and in a solution as Hydrochloric Acid, is a corrosive substance and can cause severe and painful burns on contact with any part of the body or if taken internally. The mucous membranes of the eyes and the upper respiratory tract are especially susceptible to the injurious effects of high atmospheric concentrations of Hydrogen Chloride. The gas or vapor is so penetrating and pungent that when high concentrations do occur, those exposed should immediately leave the contaminated area.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	No Data Available	No Data Available	No Data Available

Signs and Symptoms of Exposure
Exposure to Hydrochloric acid may cause severe burns at the contact points

Medical Conditions Generally Aggravated by Exposure
Exposure to fumes may aggravate dermatitis and breathing disorders.

Section 11 - Toxicological Information (continued)

Specific Target Organ Toxicity (Single Exposure)
Respiratory System - May cause respiratory injury/irritation

Specific Target Organ Toxicity (Repeated Exposure)
Respiratory System - May cause respiratory injury/irritation

Toxicology	Inhalation Data
Hydrogen Chloride	Human LCLo - 1300 ppm/30 min
	Rat LC_{50} - 4701 ppm/30 min
	Oral (rabbit) LD_{50} - 900 mg/kg
	Oral (rat) LD_{50} - 700 mg/kg
	Dermal (rabbit) LD_{50} - 5010 mg/kg
	Germ Cell Mutagenicity No Data Available

Skin Corrosion/Irritation
Causes severe skin burns and eye damage pH <1

Serious Eye Damage/Irritation
Causes severe eye damage pH <1

Respiratory or Skin Sensitization
Corrosive to respiratory tract with concentrated or repeated exposures

Section 12 - Ecological Information

Ecological Toxicity
Animals exposed to hydrochloric acid solution will experience tissue damage, burns and may be killed. Plants contaminated with hydrochloric acid solutions of low pH may be adversely effected or destroyed. High concentrations have been shown to be detrimental to aquatic life. A release into a body of water will kill fish and other aquatic life.

Other Ecological Information
Hydrochloric acid is stable and found naturally in the environment. All work practices should be aimed at eliminating environmental contamination.

Chemical Fate Information
Hydrochloric acid is naturally occurring in the environment.

Other Regulatory Information
No other regulatory information is available on this product.

Section 13 - Disposal Considerations

As sold, this product, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR 261). It is listed as Hazardous Waste Number D002, listed due to its corrosivity. The transportation, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Refer to state and local statutes for any additional requirements, as they may differ from Federal laws.

Waste Disposal
Under Federal RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether the product falls under RCRA as a hazardous waste. This is because product uses, transformations, mixtures, etc. may render the resulting end-product hazardous.

Container Disposal
Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

Section 14 - Transport Information

Regulated Material
Hydrochloric Acid is defined as hazardous by the US DOT and Transport Canada

North American Emergency Response Guide Book
ID # 1789 Guide #157 2016 Revision

DOMESTIC SHIPPING INFORMATION

Proper Shipping Name	Hydrochloric Acid	Hazard Classification	Corrosive
UN/NA Identification	UN 1789	Hazard Class	Class 8
DOT Labels Required	Corrosive	Packaging Group	II

INTERNATIONAL SHIPPING INFORMATION

Proper Shipping Name	Hydrochloric Acid	Hazard Classification	Corrosive
UN/NA Identification	UN 1789	Hazard Class	Class 8
Labels Required	Corrosive	Packaging Group	II

Section 15 - Regulatory Information

U.S. Federal Regulations

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):

Chemical Name: Hydrochloric Acid CAS # 7647-01-0 RQ - 5000 lbs

Toxic Substances Control Act (TSCA):

All components of this product are included on the TSCA inventory

OSHA Hazard Communication Standard Classification:

Corrosive as defined by the OSHA Hazard Communication Standard.

Clean Water Act (CWA):

Chemical Name: Hydrochloric Acid CAS # 7647-01-0 Listed as Hazardous

No chemical components listed as Priority pollutants or Toxic pollutants

Clean Air Act (CAA):

Hydrochloric acid, CAS 7647-01-0, is listed as a hazardous air pollutant (HAP)

US Environmental Protection Agency Risk Management Plan (RMP) Regulated:

No, Hydrochloric acid solution under 37% is not regulated

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

Section 304: Hydrochloric Acid CAS # 7647-01-0 5000 lb RQ (CERCLA)

Section 313: Hydrochloric Acid (Aerosols) CAS # 7647-01-0

National Sanitation Foundation Limits (ANSI/NSF Standard 60):

Maximum Drinking Water Use Concentration - 40 mg/l

Scale and Corrosion Control at Maximum 40 mg/l

State Regulations

California Safe Drinking Water Act (Prop 65) Listing:

No ingredients listed in this section

California Right to Know Act:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Section 15 - Regulatory Information (continued)

New Jersey Right to Know Act:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Chemical Name: Water CAS # 7732-18-5

Massachusetts Right to Know Act Substance List (MSL)::

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Pennsylvania Right to Know Act Hazardous Substance List:

Chemical Name: Water CAS # 7732-18-5

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

International Regulations

Canadian Domestic Substance List (DSL) Inventory Listing:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Canadian Ingredient Disclosure List

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

Canadian Workplace Hazardous Materials Information System (WHMIS):

Class E: Corrosive material

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

European Inventory of Existing Chemicals (EINECS):

Chemical Name: Hydrochloric Acid EINECS # 2315957

EU Labeling in Accordance with EC Directives:

Hazard Symbols: C

EU Risk (R) and Safety (S) Phrases:

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed

R37/38: Irritating to respiratory system and skin

R41: Risk of serious damage to eyes

S36/37: Wear suitable protective clothing and gloves

S45: In case of accident or if you feel unwell, seek medical advice immediately

S53: Avoid exposure - obtain special instructions before use

S61: Avoid release to the environment. Refer to safety data sheet

Japanese Minister of International Trade and Industry (MITI) Inventory Listing:

Chemical Name: Hydrochloric Acid SECTION STRUCTURE # 1-324

Australian Inventory of Chemical Substances (AICS) Listing:

Chemical Name: Hydrochloric Acid CAS # 7647-01-0

US Census Bureau - Foreign Trade Identification

Chemical Name: Hydrochloric Acid HTS & Schedule B # 2806.10.0000

Section 16 - Other Information

Created By	MSDS Revision Date
Product Safety - 6/1/98	May 9, 2018
MSDS Revision Number	**Revision Indicator**
Revision # 014	SARA Information Clarification

MSDS Contact
Robert Dritschel 908-284-2800

Does Product Contain, or is Manufactured with, CFC's?
No

National Fire Protection Association (NFPA) Ratings:
Health - 3 Flammability - 0 Instability - 0 Other Hazard Information - ACID

Hazardous Material Identification System (HMIS):
Health - 3 Flammability - 0 Physical Hazard - 0 Protective Equipment - X

North American Emergency Response Guide Book
ID # 1789 Guide #157 2016 Revision

Disclaimer of Liability

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1. Identification

Product identifier **Sodium Hydroxide Solution 10-54%**

Other means of identification

Synonyms Caustic Soda, Caustic, Alkali, Lye, Caustic lye, Caustic Soda Liquid 50%, Soda Lye, Liquid Caustic, Sodium Hydrate.

Recommended use Pulping and Bleaching, pH neutralizer, Detergent, Soaps.

Recommended restrictions None known.

Manufacturer / Importer / Supplier / Distributor information

Company name Connection Chemical, LP

Address 126 South State St.
Newtown, PA 18940 USA

General Information

Telephone +1-215-493-4240

Website ConnectionChemical.com

Emergency phone number CHEMTREC
US: 1-800-424-9300

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage.

Precautionary statement

Prevention Keep only in original container. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Do not breathe mist or vapor. Wash thoroughly after handling.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Storage Store locked up.

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

Hazard(s) not otherwise classified (HNOC) Not classified.

Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3

Supplemental information

Hazard statement Harmful to aquatic life.

Precautionary statement

Prevention Avoid release to the environment.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Sodium hydroxide	1310-73-2	10-54%

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately! Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.

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. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Do not induce vomiting. Immediately rinse mouth and drink plenty of water. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious person. Do not use mouth-to-mouth method if victim ingested the substance.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Shortness of breath.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Keep victim under observation.

General information In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Use extinguishing agent suitable for type of surrounding fire.

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire. Do not use halogenated extinguishing agents.

Specific hazards arising from the chemical The product itself does not burn. May decompose upon heating to produce corrosive and/or toxic fumes. Contact with metal may release flammable hydrogen gas.

Special protective equipment and precautions for firefighters Fire fighters should enter the area only if they are protected from all contact with the material. Full protective clothing, including self-contained breathing apparatus, coat, pants, gloves, boots and bands around legs, arms, and waist, should be worn. No skin surface should be exposed.

Fire-fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Following product recovery, flush area with water.

Small Spills: Absorb spill with vermiculite or other inert material. Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Use caution when combining with water; DO NOT add water to caustic; ALWAYS add caustic to water while stirring to minimize heat generation. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe mist or vapor. Use only with adequate ventilation. Wear appropriate personal protective equipment. Transfer and storage systems should be compatible and corrosion resistant. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials (See Section 10).

Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel, FRP, or Derakane vinyl ester resin. Do not allow material to freeze.

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Biological limit values

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

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye

wash facilities and	emergency shower must be available when handling this product.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear chemical goggles and face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with organic vapor cartridge and full facepiece.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Viscous liquid.
Color	Clear.
Odor	Odorless.
Odor threshold	Not available.
pH	14
Melting point/freezing point	50 - 53 °F (10 - 11.67 °C) (50% solution)
Initial boiling point and boiling range	266 - 284 °F (130 - 140 °C) (50% solution)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	23.76 mm Hg (approximately) (77 °F (25 °C))
Vapor density	Not available.
Relative density	1.525 (50% solution)
Relative density temperature	68 °F (20 °C)
Solubility(ies)	Completely miscible with water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Molecular formula	NaOH
Molecular weight	40.1 g/mol

10. Stability and reactivity

Reactivity	Contact with metal may release flammable hydrogen gas.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Corrosive to aluminum, tin, zinc, copper and most alloys in which they are present including brass and bronze. Corrosive to steels at elevated temperatures above 40°C (104°F).
Incompatible materials	Oxidizing agents. Acids. Phosphorus. Aluminum. Zinc. Tin. Initiates or catalyzes violent polymerization of acetaldehyde, acrolein or acrylonitrile.
Hazardous decomposition products	Contact with metals (aluminum, zinc, tin) and sodium tetrahydroborate liberates hydrogen gas.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns. Harmful if swallowed.
Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes severe eye burns. Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Product	Species	Test Results
Sodium Hydroxide Solution 10-54%		
Acute		
Dermal		
LD50	Rabbit	> 2 g/kg
Oral		
LD50	Rat	300 - 500 mg/kg
Other	Mouse	40 mg/kg, Intraperitoneal
LD50		

Skin corrosion/irritation	Causes severe skin burns and eye damage. Standard Draize Test: 500 mg/24 hour(s) skin - rabbit severe.
Serious eye damage/eye irritation	Causes severe eye burns. Causes serious eye damage. Standard Draize Test: 400 µg eyes - rabbit mild; 1 percent eyes - rabbit severe.
Respiratory sensitization	No data available.
Skin sensitization	No data available.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity	No data available.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Chronic effects	Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Harmful to aquatic life.

Product		Species	Test Results
Sodium Hydroxide Solution **10-54%**			
Aquatic			
Acute			
Fish	LC50	Bluegill (Lepomis macrochirus)	99 mg/l, 48 hours
		Mosquitofish (Gambusia affinis affinis)	125 mg/l, 96 hours

Persistence and degradability	Expected to degrade rapidly in air.
Bioaccumulative potential	The product is not expected to bioaccumulate.
Mobility in soil	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1824
UN proper shipping name	Sodium hydroxide solution
Transport hazard class(es)	8
Subsidiary class(es)	-
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Special provisions	B2, IB2, N34, T7, TP2
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1824
UN proper shipping name	Sodium hydroxide solution
Transport hazard class(es)	8
Subsidiary class(es)	-
Packaging group	II
Environmental hazards	No
Labels required	8
ERG Code	8L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1824
UN proper shipping name	SODIUM HYDROXIDE SOLUTION
Transport hazard class(es)	8
Subsidiary class(es)	-
Packaging group	II
Environmental hazards	
Marine pollutant	No
Labels required	8
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory information

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

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

Not regulated.

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

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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

SARA 302 Extremely hazardous substance	No
SARA 311/312 Hazardous chemical	Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)	Not regulated.
Food and Drug Administration (FDA)	Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
Sodium hydroxide (CAS 1310-73-2)

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania RTK - Hazardous Substances
Sodium hydroxide (CAS 1310-73-2)

US. Rhode Island RTK
Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

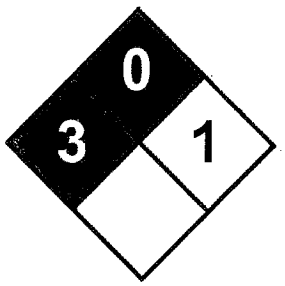
International Inventories

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

NFPA Ratings



List of abbreviations

LD50: Lethal Dose, 50%.
LC50: Lethal Concentration, 50%.
EC50: Effective concentration, 50%.
TWA: Time weighted average.

References

EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
US. IARC Monographs on Occupational Exposures to Chemical Agents
IARC Monographs. Overall Evaluation of Carcinogenicity
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

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Preparation Information

Connection Chemical, LP
Version: 1.0
Date: 05/26/2015

Les Sables
OLIMAG Inc.

Non-hazardous material safety data sheet for

Synthetic Olivine

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

1.1 Product identifier

Product name:	Jetmag® , Olimag® , Magfill®
Other names:	Magnesium silicate, synthetic olivine, pyroxen
REACH registration number:	Exempt
CAS number:	RN 12 44 003-26-6

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

Identified uses: Refractory material, sandblast (abrasive) geothermal grout, rail traction sand

1.3 Details of the supplier of the safety data sheet

Les Sables Olimag, 725 Caouette C.P. 276 Thetford Mines QC G6G 5T1 CA
info@olimag.com

1.4 Emergency telephone number of supplier

Les Sables Olimag 418-338-3562

Hours of operation: 09.00 – 16.00 (local business hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (EC 1272/2008): Physical and chemical hazards: not classified
Human health: STOT RE 2 – H373
Environment: not classified

The full text for all R-phrases and hazard statements are displayed in section 16.

2.2 Label elements

Label in accordance with (EC) No. 1272/2008: No pictogram required

2.3 Other hazards

This product does not contain any PBT or vPvB substances.

SECTION 3: Composition/information on ingredients

3.1 Substances

Product / Ingredient name	%	CAS No	EC No	Classification	Mineral Analysis	
				Regulation (EC) No. 1272/2008 [CLP]	Mineral	% Weight
MgO	38-42	1309-48-4	215-171-9	Not classified	Mg_2SiO_3	50 - 60
SiO_2 (*)	39-47	112926-00-8	231-545-4	Not classified	$MgSiO_3$	25 - 30
Fe_2O_3	7-10	1309-37-1	215-275-4	Not classified	$MgFe_2O_4$	8 - 10
Al_2O_3	0.3-1.3	1344-28-1	215-691-6	Not classified	Fe_2O_3	2 - 8
CaO	0.8-1.0	1305-78-8	215-138-9	Not classified	Others	4 - 5
Others	1-2			Not classified		

(*) In silicate form with less than 1% free silica.

The full text for all R phrases and hazard statements are displayed in section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation:	Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion:	Rinse mouth thoroughly. Get medical attention if any discomfort continues.
Skin contact:	Wash skin with soap and water. Get medical attention if irritation persists after washing.
Eye contact:	Make sure to remove any contact lenses from the eyes before rinsing. Rinse eye with water immediately. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation:	No specific symptoms noted.
Ingestion:	No specific symptoms noted.
Skin contact:	No specific symptoms noted.
Eye contact:	No specific symptoms noted.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically

SECTION 5: Fire fighting measures

5.1 Extinguishing media — This product is not flammable. Use fire extinguishing media appropriate for surrounding materials.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: None under normal conditions

5.3 Advice for firefighters

Special fire fighting procedures: No specific fire fighting procedures given

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Follow precautions for safe handling described in this safety data sheet

6.2 Environmental precautions — The product should not be dumped in nature but collected and delivered according to agreement with the local authorities.

6.3 Methods and material for containment and cleaning up

Avoid dust formation. Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Transfer to a container for disposal.

6.4 Reference to other sections — For personal protection see section 8. For waste disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid handling which leads to dust formation. Avoid inhalation of high concentrations of dust. Observe occupational exposure limits and minimise the risk of inhalation of dust.

7.2 Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

7.3 Specific end use(s)

The identified uses for this product are detailed in section 1.2

SECTION 8: Exposure controls / personal protection

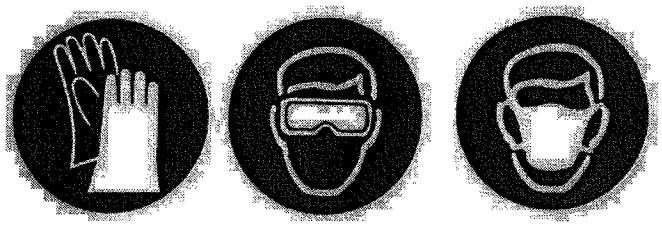
8.1 Control parameters

Name	STD	TWA – 8hrs		STEL – 15mins		Notes
Synthetic Olivine	WEL	10 mg/m^3	5 mg/m^3			

WEL = Workplace Exposure Limit

8.2 Exposure controls

Protective equipment



Engineering measures:	Provide adequate ventilation. Observe occupational exposure limits and minimise the risk of inhalation of dust.
Respiratory equipment:	No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit. Wear dust masks in dusty areas.
Hand protection:	No specific hand protection noted, but gloves may still be advisable.
Eye protection:	Wear dust resistant safety goggles where this is a danger of eye contact.
Other protection:	Provide eyewash station.
Hygiene measures:	Wash hands at the end of each work shift and before eating, smoking and using the toilet.

SECTION 9: Physical and chemical properties

9.1 Information on basic and physical and chemical properties

Appearance:	Granular sand, crushed or ground to a powder
Colour:	Color varies from light to dark brown
Odour:	Odourless
Solubility:	Insoluble in water
Melting point (°C):	> 1700
Relative density:	1.8 - 1.40 g / cm^3 - 84.55 - 87.80 lb / ft^3
pH value:	N/A

9.2 Other information

Not relevant

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific reactivity hazards associated with this product.
10.2 Chemical stability	Stable under normal temperature conditions.
10.3 Possibility of hazardous reactions	Not relevant
10.4 Conditions to avoid	No specific conditions are likely to result in a hazardous situation
10.5 Incompatible materials	
Materials to avoid:	No specific, or groups, of materials are likely to react to produce a hazardous situation.
10.6 Hazardous decomposition products	None under normal circumstances

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Other health effects:	This substance has no evidence of carcinogenic properties.
Acute toxicity	
Acute toxicity (Oral LD50):	Not relevant
Acute toxicity (Dermal LD50):	Not relevant
Acute toxicity (Inhalation LC50):	Not relevant
Inhalation:	Dust in high concentrations may irritate the respiratory system.
Ingestion:	May cause discomfort if swallowed.
Skin contact:	No short or long term effect
Eye contact:	Particles in the eyes may cause irritation and smarting.

SECTION 12: Ecological information

Ecotoxicity:	Not regarded as dangerous for the environment.
12.1 Acute fish toxicity:	Not considered toxic to fish.
12.2 Persistence and degradability	
Degradability:	The product is not readily biodegradable.
12.3 Bioaccumulative potential:	The product is not bioaccumulating.
12.4 Mobility in soil:	Not relevant, due to the form of the product.
12.5 Results of PBT and vPvB assessment:	This product does not contain any PBT or vPvB substances.
12.6 Other adverse effects:	None known

SECTION 13: Disposal considerations

13.1 Waste treatment methods:	Dispose of waste and residues in accordance with local authority requirements.

SECTION 14: Transport considerations

Road transport notes:	Not classified
Rail transport notes:	Not classified
Sea transport notes:	Not classified
Air transport notes:	Not classified

14.1 UN Number: The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.2 UN proper shipping name: Not classified for transportation.

14.3 Transport and hazard class(es): Not classified for transportation.

14.4 Packing group: Not classified for transportation.

14.5 Environmental hazards
Environmentally hazardous substances / marine pollutant: no

14.6 Special precautions for user: Not classified for transportation.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture

Approved code of practice:	Classification and labelling of substances and preparations dangerous for supply. Safety data sheets for substances and preparations.
Guidance notes:	Workplace Exposure Limits EH40.
EU Legislation:	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulations (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.

15.2 Chemical Safety Assessment: Not applicable. No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision date:	10/10/2018
Revision:	2
Risk phrases in full:	NC – not classified

SAFETY DATA SHEET

In accordance with the requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and on Regulation (EC) No. 1907/2006 (REACH) Article 31 and Annex II

Zinc and Zinc Aluminum Alloys for Galvanizing

1. Identification of the substance or mixture and of the Supplier

- **Identification of the substance or preparation:**
  Product name: Zinc Alloys for Galvanizing and Galvanizing Brighteners
  Product Codes: 2XXX, 95XX, 96XX, 97xx, 99XX, ZNXX,
  Synonyms: Brightener, 95/5, 92/8, 90/10, 85/15, Galfan, 5% Galfan, 10% Galfan, 15% Galfan, 20% Galfan, 28% Galfan, 30% Galfan, G5, G10, G15, zinc alloy for hot dip galvanizing
- **Use of the substance/preparation:**
  Metal industry: hot dip galvanizing
- **Company/undertaking identification:**
  Eastern Alloys, Inc.
  PO Box 317
  Henry Henning Drive
  Maybrook, NY, 12543
  Tel: 845 427 - 2151
  Fax: 845 427 – 5185
  jmalmgreen@eazall.com
- **Emergency telephone:**
  24h: 845 427 – 2151

2. Hazards identification

- **GHS-US classification**
  Not classified. This product is considered an article in its final form and not subject to the requirements for classification or labeling under 29 CFR 1910.1200.
- **EC Classification**
  Not classified as dangerous according to the criteria of directive(s) 67/548/EEC and/or 1999/45/EC
- **Other hazards**
  The melting down of moist metal leads to explosion risk
  Heated product causes burns
  Caution! This substance is subject to exposure limits
  Not classified as dangerous according to the criteria of Regulation (EC) No 1272/2008
  The melting down of moist metal leads to explosion risk
  Heated product causes burns

3. Composition/information on ingredients

Substance/preparation: Preparation

Ingredient name	CAS number	%	EC number	Classification
Zinc	7440-66-6	69 – 100	231-175-3	Not classified
Aluminum	7429-90-5	0 - 30	231-072-3	Not classified
Cerium	7440-45-1	0 – 0.15	231-154-9	Not classified
Lanthanum	7439-91-0	0 – 0.15	231-099-0	Not classified

4. First aid measures

- **After inhalation:** After inhalation of fume: Remove the victim into fresh air: Respiratory problems: consult a doctor/medical service
- **Skin contact:** In case of burns: Wash immediately with lots of water (15 minutes)/shower; Remove clothing while washing; Do not tear off solidified product from the skin; Do not remove clothing if it sticks to the skin; Cover wounds with sterile bandage
  Consult a doctor/medical service
  If burned surface > 10%: take victim to hospital
- **Eye contact:** Rinse immediately with plenty of water for 15 minutes
  Take victim to an ophthalmologist
- **After ingestion:** Not applicable

5. Fire-fighting measures

- **Suitable extinguishing media:** Use an extinguishing agent suitable for the surrounding fire. Typically, apply dry chemical, dry sand, or special powder extinguishing (Class D) media. Do NOT use water, carbon dioxide or foam on molten metals. Water may be ineffective for extinguishing a fire but should be used to keep fire exposed billets, ingots and castings cool.
- **Unsuitable extinguishing media:** If molten: no water
- **Special exposure hazards:** On burning formation of metallic fumes (zinc oxide)
  In molten state: violent to explosive reaction with water (moisture)
- **Instructions:** Dilute toxic gases with water spray
  In case of metal bath fire: add metal blocks
  When cooling/extinguishing: no water in the substance
- **Special protective equipment for fire-fighters:** Gloves; Protective clothing
  Heat/fire exposure: compressed air/oxygen apparatus

6. Accidental release measures

- **Personal precautions:**
  Personal protective equipment:
  - Respiratory protection from dust production: dust mask
  - Hand protection: gloves
  - Eye protection: safety eyewear
  - Skin protection: protective clothing
- **Environmental precautions:** Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.
- **Methods for cleaning up:** If melted: allow liquid to solidify before taking it up
  Pick-up the material; Wash clothing and equipment after handling

7. Handling and storage

- **Handling:** Avoid raising dust; Observe strict hygiene; Keep away from naked flames/heat

On (re)melting down: dry and preheat before use
Add only dry material to the metal bath

- **Safe storage requirements:** Store in a dry area; Keep at temperature above dew point
  Keep away from: (strong) acids

8. Exposure controls/personal protection

- **Exposure limit values:**
  Occupational exposure: If limit values are applicable and available these will be listed below.

Ingredient name	Occupational exposure limits
Zinc	**ACGIH TLV (United States, 1/2005).** TWA: 10 mg/m 3 8 hour/hours. Form: Particulates (Insoluble) Not Otherwise Specified (PNOS)
Aluminum	**ACGIH TLV (United States, 2003). Notes:** TWA: 5 mg/m 3 8 hour/hours. TWA: 10 mg/m 3 8 hour/hours. Form: Dust TWA: 5 mg/m 3 8 hour/hours. Form: Fume
Cerium	No TLV's exist for the individual rare earth elements
Lanthanum	No TLV's exist for the individual rare earth elements

- **Exposure controls:**
  Carry out operations in well ventilated areas or with respiratory protection
  Personal protective equipment:
  - Respiratory protection from dust production: dust mask
  - Hand protection: gloves; on heating: insulated gloves
  - Eye protection: safety eyewear; on (re)melting: face shield & goggles/safety glasses
  - Skin protection: protective clothing; on (re)melting: heat resistant clothing, safety footwear

9. Physical and chemical properties

- **General information**:

Physical form	Solid (ingots); Metal
Odor	Odorless
Color	Gray

- **Important health, safety and environmental information**

Boiling point	900 – 910 ºC (1652 – 1670 ºF)
Melting point	375 – 487 ºC (714 – 903 ºF)
Density	4.9 – 6.6 g/cm^3
Solubility	Insoluble in water; soluble in acids
Flash point	Not Applicable
Explosive properties	Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

10. Stability and reactivity

- **Conditions to avoid:**
  Possible fire hazard: heat sources
  Stability: Stable under normal conditions
  Reactions: In molten state: violent to explosive reaction with water (moisture)
  Oxidizes slowly in moist air
- **Materials to avoid:**
  Strong acids
- **Hazardous decomposition products:**
  Reacts with some acids: release of highly flammable gases/vapors (hydrogen)
  On burning formation of metallic fumes (zinc oxide)

11. Toxicological information

- **Acute toxicity:** No (test)data on the mixture available.

Ingredient name	Test	Result	Route	Species
Zinc	LD50	2000 mg/kg	Oral	Rat
Zinc	LDLo	388 mg/kg	Oral	Duck

- **Potential chronic health effects**
  Inhalation:
  AFTER INHALATION OF DUST: Irritation of the nasal mucous membranes, dry/sore throat, coughing
  AFTER INHALATION OF FUMES: Inhalation of fumes or very fine dust may lead to metal fever, a flu-like syndrome with symptoms of fever, chills, malaise and cough. The syndrome is benign and symptoms usually disappear after a few hours. Symptoms include: Feeling of weakness, vomiting, and nausea
  Skin contact: In molten state: Burns
  Eye contact: In molten state: Burns
  Ingestion: No data available

12. Ecological information

- **Ecotoxicity:** No test data on the mixture available.

Ingredient name	Species	Period (hours)	Result
Zinc	Daphnia magna (EC50)	48	2.8 mg/l
	Pimephales promelas (LC50)	96	0.238 mg/l
	Oncorhynchus mykiss (LC50)	96	0.24 mg/l
	Oncorhynchus mykiss (LC50)	96	0.41 mg/l
	Oncorhynchus mykiss (LC50)	96	0.56 mg/l
	Daphnia magna (LC50)	96	0.57 mg/l
Aluminum	Oncorhynchus mykiss (LC50)	96	0.12 mg/l
	Oncorhynchus mykiss (LC50)	96	0.16 mg/l
	Oncorhynchus mykiss (LC50)	96	0.31 mg/l

- **Mobility:**
  Volatile organic compounds (VOC) Not applicable
  Solubility in/reaction with water Literature reports: insoluble in water
  Substance sinks in water
- **Persistence and degradability:**
  BOD20: Not applicable
  Biodegradability: not applicable
- **Bioaccumulative potential:**
  No bioaccumulation data available
- **Results of PBT assessment:**
  Not applicable, based on available data
- **Other adverse effects:**
  Not dangerous for the ozone layer (1999/45/EC)

13. Disposal considerations

- **Provisions relating to waste:**
  Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.
  Waste material code (Directive 2008/98/EC, decision 2001/118/EC) 11 01 99: wastes not otherwise specified
  Can be considered as non-hazardous waste according to Directive 2008/98/EC
- **Disposal methods:**
  The generation of waste should be avoided or minimized wherever possible.
  Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
  Recycle/reuse. Remove waste in accordance with local and/or national regulations
- **Packaging/Container:** No available data.

14. Transportation information

- **US / Canada regulations**
  U.S. DOT and Transport Canada Hazard Classification ..... Not applicable
  U.S. DOT and Transport Canada Product Identification Number ..... Not applicable
  Marine Pollutant ..... No
  IMO Classification ..... Not regulated
- **International transport regulations**
  ADR/RID: Not regulated
  ADNR: Not regulated
  IMO/IMDG: Not regulated
  IATA Class: Not regulated

15. Regulatory information

- **U.S.**
  Ingredients Listed on TSCA Inventory ..... Yes
  Hazardous Under Hazard Communication Standard ..... No Ingredients Qualify
  CERCLA Section 103 Hazardous Substances ..... Zinc ..... Yes ..... RQ: 1,000 lbs. (454 kg.)*
  * reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).
  EPCRA Section 302 Extremely Hazardous Substance: ..... No Ingredients Qualify
  EPCRA Section 311/312 Hazard Categories: ..... No Hazard Categories Apply
  EPCRA Section 313 Toxic Release Inventory: ..... This product does not contain any toxic chemicals
  subject to the Toxic Release reporting requirements. However, potential by-products from working with this product, "Zinc (Fume or Dust)" CAS 7440-66-6 and “Aluminum (Fume or Dust)” CAS 7429-90-5 are reportable.
- **CANADIAN:**
  Ingredients Listed on DSL: .... Yes
  WHMIS Classification: ..... In ingot form, this product is not a Controlled Product under the CPR.
- **EUROPEAN UNION:**
  Ingredients Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS): ..... Yes
- **EU GHS CLP Classification:** ..... Neither zinc nor aluminum is classified.

16. Other information

History
Date of issue: 10/1/13
Revision date: 12/5/14
Version: 002

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.
Each of the products covered by this document is considered an article in its final form and not subject to the requirements for classification or labeling under 29 CFR 1910.1200.

Notice to Reader

To the best of our knowledge, the information contained in this Safety Data Sheet is accurate and reliable and reasonable precautions have been taken in the preparation of the data contained herein. It is offered solely for your information, consideration and investigation. Eastern Alloys, Inc. and its subsidiaries extend no warranty and assume no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. This Safety Data Sheet shall not constitute a guarantee for any specific product features. Determination of suitability of this material is the sole responsibility of the user. All materials may present unknown hazards and should be used and handled with caution and following reasonable safety procedures. Consequently the buyer assumes all risks in connection with the use and handling of this material.

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

1.1. Product identifier

Product form : Mixture

Product name : Antiblast

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

Use of the substance/mixture : Additive for preflux bathes.

1.3. Details of the supplier of the safety data sheet

SOPRIN S.r.l.
Via dell'Industria 106
31052 Maserada Sul Piave (TV), - Italy
T (+39) 0422 521025 - F (+39) 0422 521060
soprin@soprin.it (Alessandro Padovan)

1.4. Emergency telephone number

Emergency number : (+39) 0422 521025

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Skin Corr. 1B H314
Eye Dam. 1 H318

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS05

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Precautionary statements (GHS-US) : P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash ... thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center/doctor/...
P321 - Specific treatment (see ... on this label)
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to ...

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	%	Classification (GHS-US)
Dodecylbis(2-hydroxyethyl)methylammonium chloride	(CAS No) 22340-01-8	5 - 6	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Chronic 3, H412

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

First-aid measures after skin contact : Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

First-aid measures after ingestion : Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

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

Symptoms/injuries after inhalation : Possible vapors are caustic for the respiratory system and may cause pulmonary edema, whose symptoms sometimes arise only after some hours.

Symptoms/injuries after skin contact : This product is corrosive and causes serious burns and vesicles on the skin, which can arise even after exposure. Burns are very stinging and painful.

Symptoms/injuries after eye contact : Upon contact with eyes, it may cause serious harm, such as cornea opacity, iris lesions, irreversible eye coloration.

Symptoms/injuries after ingestion : If swallowed, it may cause mouth, throat and esophagus burns, sickness, diarrhoea, edema, larynx swelling and, consequently, asphyxia. Perforation of the gastro-intestinal tract is also possible.

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 : Carbon dioxide, dry chemical powder, foam, water spray.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Stop the flow of material, if this is without risk. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.
Methods for cleaning up	: Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Additive for preflux bathes.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls	: Local exhaust and general ventilation must be adequate to meet exposure standards.
Hand protection	: Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.
Eye protection	: Wear protective airtight goggles.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: No data available
Odor	: No data available
Odor threshold	: No data available
pH	: 6.4
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	: > 60 °C
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	: No data available
Density	: 1000 g/l
Solubility	: No data available
Log Pow	: No data available

Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

Strong reducing and oxidizing agents, hard acids and bases.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Dodecylbis(2-hydroxyethyl)methylammonium chloride (22340-01-8)	
ATE US (oral)	500.00000000 mg/kg body weight

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 6.4
Serious eye damage/irritation	: Causes serious eye damage. pH: 6.4
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

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

In accordance with DOT

Transport document description	: UN1760 Corrosive liquids, n.o.s. (dodecylbis(2-hydroxyethyl)methylammonium chloride), 8, II
UN-No.(DOT)	: 1760
DOT NA no.	: UN1760
DOT Proper Shipping Name	: Corrosive liquids, n.o.s. (dodecylbis(2-hydroxyethyl)methylammonium chloride)
Department of Transportation (DOT) Hazard Classes	: 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT)	: 8 - Corrosive

DOT Symbols	: G - Identifies PSN requiring a technical name
Packing group (DOT)	: II - Medium Danger
DOT Special Provisions (49 CFR 172.102)	: B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 154
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H412	Harmful to aquatic life with long lasting effects

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

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture

Product name : Antivapor-D

1.2. Recommended use and restrictions on use

For use in hydrochloric acid pickling solutions

1.3. Supplier

SOPRIN S.r.l.
Via dell'Industria 106
31052 Maserada Sul Piave (TV) - Italy
T (+39) 0422 521025 - F (+39) 0422 521060
soprin@soprin.it (Alessandro Padovan)

1.4. Emergency telephone number

Emergency number : CHEMTREC 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS-US/ CAN)

Not classified

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labeling

No labeling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US/CAN)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification (GHS-CA)	GHS-US classification
Hydrochloric acid	(CAS No) 7647-01-0	< 0.1	Met. Corr. 1, H290 Acute Tox. 3 (Inhalation), H331 HHNOC 1, HHNOC Skin Corr. 1, H314 Eye Dam. 1, H318	Met. Corr. 1, H290 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

First-aid measures after skin contact : Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

First-aid measures after ingestion : Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorized by a doctor.

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

Symptoms/injuries after inhalation : None anticipated under normal product handling conditions.

Symptoms/injuries after skin contact : None anticipated under normal product handling conditions.

Symptoms/injuries after eye contact : None anticipated under normal product handling conditions.

Symptoms/injuries after ingestion : None anticipated under normal product handling conditions.

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 : Carbon dioxide, foam, powder and water spray.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None.

Explosion hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Block the leakage if there is no hazard. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Before handling the product, consult all the other sections of this safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hydrochloric acid (7647-01-0)		
USA - ACGIH	ACGIH Ceiling (ppm)	2 ppm
USA - OSHA	OSHA PEL (Ceiling) (mg/m³)	7 mg/m³
USA - OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
Canada (Quebec)	PLAFOND (mg/m³)	7.5 mg/m³
Canada (Quebec)	PLAFOND (ppm)	5 ppm
Alberta	OEL Ceiling (mg/m³)	3 mg/m³
Alberta	OEL Ceiling (ppm)	2 ppm
British Columbia	OEL Ceiling (ppm)	2 ppm
Manitoba	OEL Ceiling (ppm)	2 ppm
New Brunswick	OEL Ceiling (mg/m³)	7.5 mg/m³
New Brunswick	OEL Ceiling (ppm)	5 ppm
New Foundland & Labrador	OEL Ceiling (ppm)	2 ppm

Hydrochloric acid (7647-01-0)		
Nova Scotia	OEL Ceiling (ppm)	2 ppm
Nunavut	OEL Ceiling (ppm)	2 ppm
Northwest Territories	OEL Ceiling (ppm)	2 ppm
Ontario	OEL Ceiling (ppm)	2 ppm
Prince Edward Island	OEL Ceiling (ppm)	2 ppm
Saskatchewan	OEL Ceiling (ppm)	2 ppm
Yukon	OEL Ceiling (mg/m³)	7 mg/m³
Yukon	OEL Ceiling (ppm)	5 ppm

8.2. Exposure controls

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

Hand protection : Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Eye protection : Wear protective airtight goggles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Brown.

Odour : Natural substances

Odour threshold : No data available

pH : > 2.1

Relative evaporation rate (butylacetate=1) : No data available

Melting point : No data available

Freezing point : < -5 °C

Boiling point : No data available

Flash point : > 100 °C

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapour pressure : No data available

Relative vapour density at 20 °C : No data available

Relative density : 1005 kg/m³

Solubility : Soluble in water

Log Pow : No data available

Log Kow : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

Explosive properties : No data available

Oxidising properties : No data available

Explosive limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None

10.5. Incompatible materials

Alkalis, organic substances, strong oxidants and metals.

10.6. Hazardous decomposition products

Hydrochloric acid fumes may develop above decomposition temperature.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Hydrochloric acid (7647-01-0)	
LD50 oral rat	238 - 277 mg/kg
LD50 dermal rabbit	> 5010 mg/kg
LC50 inhalation rat (mg/l)	1.68 mg/l (Exposure time: 1 h)

Skin corrosion/irritation : Not classified
pH: > 2.1
Serious eye damage/irritation : Not classified
pH: > 2.1
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

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute : Not classified
Aquatic chronic : Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

Hydrochloric acid (7647-01-0)	
1990 Hazardous Air Pollutant (Clean Air Act)	Yes

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

Not regulated for transport

14.2. Transport information/DOT

DOT

Not regulated for transport

14.3. Air and sea transport

IMDG

Not regulated for transport

IATA

Not regulated for transport

SECTION 15: Regulatory information

15.1. Canada National regulations

Hydrochloric acid (7647-01-0)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Hydrogen chloride (7647-01-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 302 (Specific toxic chemical listings) Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 302 Threshold Planning Quantity (TPQ)	500 (gas only)
SARA Section 313 - Emission Reporting	1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

15.3. US State regulations

Hydrogen chloride (7647-01-0)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

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

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture

Product name : Flux Zinc

1.2. Recommended use and restrictions on use

Smelting / deoxidizing agent for hot dip galvanizing kettles.

1.3. Supplier

SOPRIN S.r.l.
Via dell'Industria 106
31052 Maserada Sul Piave (TV) - Italy
T (+39) 0422 521025 - F (+39) 0422 521060
soprin@soprin.it (Alessandro Padovan)

1.4. Emergency telephone number

Emergency number : (+39) 0422 521025

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS-US/ CAN)

Skin corrosion/irritation Category 2 H315
Serious eye damage/eye irritation Category 2 H319

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labeling

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary statements : P264 - Wash thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302+P352 - IF ON SKIN: Wash with plenty of water
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US/CAN)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification (GHS-CA)	GHS-US classification
Ammonium chloride	(CAS No) 12125-02-9	30 - 32.5	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust	Acute Tox. 4 (Oral), H302
Ammonium nitrate	(CAS No) 6484-52-2	15 - 16.5	Ox. Sol. 3, H272 Eye Irrit. 2A, H319	Ox. Sol. 3, H272 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

First-aid measures after skin contact : Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

First-aid measures after eye contact : Remove contact lenses, if present Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

First-aid measures after ingestion : Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

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

Symptoms/injuries after inhalation : Vapour inhalation may moderately irritate the upper respiratory tract.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Use water only. Do not attempt to smother the fire. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : Do not use salt water, dry chemical, carbon dioxide, steam or foam.

5.3. Specific hazards arising from the hazardous product

Fire hazard : If large quantities of the product are involved in a fire, they can make it considerably worse. Do not breathe combustion products.

Explosion hazard : May be explosive in contact with flammable or organic substances during fire.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Remove all containers containing the product from the fire, if it is safe to do so.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

If there are no contraindications, spray powder with water to prevent the formation of dust. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Methods and materials for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Collect the leaked product and place it in containers for recovery or disposal. If there are no contraindications, use jets of water to eliminate product residues.

Make sure the leakage site is well aired. Evaluate the compatibility of the container to be used, by checking section 10. Contaminated material should be disposed of in compliance with the provisions set forth in Section 13.

6.3. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium chloride (12125-02-9)		
USA - ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (fume)
USA - ACGIH	ACGIH STEL (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VECD (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³ (fume)
Alberta	OEL STEL (mg/m³)	20 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	10 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	20 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	20 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	20 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	10 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	20 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	20 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	10 mg/m³ (fume)

8.2. Exposure controls

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

Hand protection : Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Eye protection : Wear protective airtight goggles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Color : Dark grey

Odor : Odorless

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Relative evaporation rate (ether=1) : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : > 500 °C

Auto-ignition temperature : 400 °C

Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Vapor pressure at 50 °C	:	No data available
Relative density	:	0.63
Solubility	:	No data available
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

The powders are potentially explosive when mixed with air.

AMMONIUM CHLORIDE
Violent reaction under influence of oxidising agents. Incompatible with bases. It reacts with nitrite.

10.4. Conditions to avoid

Avoid environmental dust build-up, moisture and sources of heat.

Store in well sealed containers out of contact with reducing agents, combustibles and metal powders to avoid explosive reactions and fires.

10.5. Incompatible materials

AMMONIUM CHLORIDE: Water, bromine trifluoride and pentafluoride, iodine heptafluoride, potassium chlorate, alkalis, alkaline carbonates, acids, lead and silver salts.

AMMONIUM NITRATE
Reducing agents, strong acids and bases, metal powders, combustible materials, chromates, zinc, copper and copper alloys, chlorates.

10.6. Hazardous decomposition products

AMMONIUM CHLORIDE: nitric oxide, ammonia and hydrochloric acid.
AMMONIUM NITRATE: nitric oxides, oxygen.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

Ammonium nitrate (6484-52-2)	
LD50 oral rat	2217 mg/kg
LC50 inhalation rat (mg/l)	> 88.8 mg/l/4h

Ammonium chloride (12125-02-9)	
LD50 oral rat	1650 mg/kg

Skin corrosion/irritation	:	Causes skin irritation.
Serious eye damage/irritation	:	Causes serious eye irritation.
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

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute : Not classified

Aquatic chronic : Not classified

Ammonium nitrate (6484-52-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Ammonium nitrate (6484-52-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

12.4. Mobility in soil

Ammonium nitrate (6484-52-2)	
Log Pow	-3.1 (at 25 °C)

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

Not regulated for transport

14.2. Transport information/DOT

DOT

Not regulated for transport

14.3. Air and sea transport

IMDG

Not regulated for transport

IATA

Not regulated for transport

SECTION 15: Regulatory information

15.1. Canada National regulations

Ammonium nitrate (6484-52-2)
Listed on the Canadian DSL (Domestic Sustances List)

Ammonium chloride (12125-02-9)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Ammonium nitrate (6484-52-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ammonium chloride (12125-02-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	5000 lb

15.3. US State regulations

Ammonium nitrate (6484-52-2)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Ammonium chloride (12125-02-9)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H272	May intensify fire; oxidizer
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation

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

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture

Product name : Hydronet Base, Hydronet Ricarica

1.2. Recommended use and restrictions on use

Acidic degreaser, phosphoric acid-based

1.3. Supplier

SOPRIN S.r.l.
Via dell'Industria 106
31052 Maserada Sul Piave (TV) - Italy
T (+39) 0422 521025 - F (+39) 0422 521060
soprin@soprin.it (Alessandro Padovan)

1.4. Emergency telephone number

Emergency number : CHEMTREC 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS-US/CAN)

Met. Corr. 1 H290

Skin Corr. 1B H314

Eye Dam. 1 H318

Full text of classification categories and H statements : see section 16

2.2. Label elements

GHS-US/CAN labeling

Hazard pictograms :

GHS05

Signal word : Danger

Hazard statements : H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage

Precautionary statements : P234 - Keep only in original container
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center/doctor
P363 - Wash contaminated clothing before reuse
P390 - Absorb spillage to prevent material damage
P405 - Store locked up
P406 - Store in corrosive resistant container with a resistant inner liner
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification (GHS-CA)	Classification (GHS-US)
Phosphoric acid	(CAS No) 7664-38-2	15 - 16.5	Met. Corr. 1, H290 HHNOC 1, HHNOC Skin Corr. 1, H314 Eye Dam. 1, H318	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318
Poly(oxy-1,2-ethanediyl), .alpha.-(2-propylheptyl)-.omega.-hydroxy-	(CAS No) 160875-66-1	13.5 - 15	Not classified	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318
Hydrochloric acid	(CAS No) 7647-01-0	3.5 - 4	Met. Corr. 1, H290 Acute Tox. 3 (Inhalation), H331 HHNOC 1, HHNOC Skin Corr. 1, H314 Eye Dam. 1, H318	Met. Corr. 1, H290 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

First-aid measures after skin contact : Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

First-aid measures after ingestion : Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorized by a doctor.

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

Symptoms/injuries after inhalation : Possible vapours are caustic for the respiratory system and may cause pulmonary edema, whose symptoms sometimes arise only after some hours. Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness.

Symptoms/injuries after skin contact : This product is corrosive and causes abrasions of skin surface, accompanied by rubefaction, warmth and sting. In the most serious cases, small vesicles appear, which cause strong sting and pain.

Symptoms/injuries after eye contact : Upon contact with eyes, may cause serious harm, such as cornea opacity, iris lesions, irreversible eye coloration.

Symptoms/injuries after ingestion : May cause mouth, throat and esophagus burns; sickness, diarrhoea, edema, larynx swelling and, consequently, asphyxia. Perforation of the gastro-intestinal tract is also possible.

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 : Carbon dioxide, foam, powder and water spray.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None.

Explosion hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Wear appropriate protective equipment. Send away individuals who are not suitably equipped. Use breathing equipment if fumes or powders are released into the air. Block the leakage if there is no hazard. Do not handle damaged containers or the leaked product before donning appropriate protective gear.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials, see section 10 for details.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hydrochloric acid (7647-01-0)		
USA - ACGIH	ACGIH Ceiling (ppm)	2 ppm
USA - OSHA	OSHA PEL (Ceiling) (mg/m³)	7 mg/m³
USA - OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
Canada (Quebec)	PLAFOND (mg/m³)	7.5 mg/m³
Canada (Quebec)	PLAFOND (ppm)	5 ppm
Alberta	OEL Ceiling (mg/m³)	3 mg/m³
Alberta	OEL Ceiling (ppm)	2 ppm
British Columbia	OEL Ceiling (ppm)	2 ppm
Manitoba	OEL Ceiling (ppm)	2 ppm
New Brunswick	OEL Ceiling (mg/m³)	7.5 mg/m³
New Brunswick	OEL Ceiling (ppm)	5 ppm
New Foundland & Labrador	OEL Ceiling (ppm)	2 ppm
Nova Scotia	OEL Ceiling (ppm)	2 ppm
Nunavut	OEL Ceiling (ppm)	2 ppm
Northwest Territories	OEL Ceiling (ppm)	2 ppm
Ontario	OEL Ceiling (ppm)	2 ppm
Prince Edward Island	OEL Ceiling (ppm)	2 ppm
Saskatchewan	OEL Ceiling (ppm)	2 ppm
Yukon	OEL Ceiling (mg/m³)	7 mg/m³
Yukon	OEL Ceiling (ppm)	5 ppm

Phosphoric acid (7664-38-2)		
USA - ACGIH	ACGIH TWA (mg/m³)	1 mg/m³
USA - ACGIH	ACGIH STEL (mg/m³)	3 mg/m³
USA - OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
Canada (Quebec)	VECD (mg/m³)	3 mg/m³
Canada (Quebec)	VEMP (mg/m³)	1 mg/m³
Alberta	OEL STEL (mg/m³)	3 mg/m³
Alberta	OEL TWA (mg/m³)	1 mg/m³
British Columbia	OEL STEL (mg/m³)	3 mg/m³
British Columbia	OEL TWA (mg/m³)	1 mg/m³
Manitoba	OEL STEL (mg/m³)	3 mg/m³
Manitoba	OEL TWA (mg/m³)	1 mg/m³
New Brunswick	OEL STEL (mg/m³)	3 mg/m³

Phosphoric acid (7664-38-2)		
New Brunswick	OEL TWA (mg/m³)	1 mg/m³
New Foundland & Labrador	OEL STEL (mg/m³)	3 mg/m³
New Foundland & Labrador	OEL TWA (mg/m³)	1 mg/m³
Nova Scotia	OEL STEL (mg/m³)	3 mg/m³
Nova Scotia	OEL TWA (mg/m³)	1 mg/m³
Nunavut	OEL STEL (mg/m³)	3 mg/m³
Nunavut	OEL TWA (mg/m³)	1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	3 mg/m³
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³
Ontario	OEL STEL (mg/m³)	3 mg/m³
Ontario	OEL TWA (mg/m³)	1 mg/m³
Prince Edward Island	OEL STEL (mg/m³)	3 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	3 mg/m³
Saskatchewan	OEL TWA (mg/m³)	1 mg/m³
Yukon	OEL STEL (mg/m³)	3 mg/m³
Yukon	OEL TWA (mg/m³)	1 mg/m³

8.2. Exposure controls

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

Hand protection : Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Eye protection : Wear protective airtight goggles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Color : brown

Odor : slightly pungent

Odor threshold : No data available

pH : < 1

Melting point : < -5 °C

Freezing point : No data available

Boiling point : No data available

Flash point : > 100 °C

Relative evaporation rate (butyl acetate=1) : No data available

Flammability (solid, gas) : No data available

Explosion limits : No data available

Explosive properties : No data available

Oxidizing properties : No data available

Vapor pressure : No data available

Relative density Hydronet Base : 1130 kg/m^3

Relative density Hydronet Ricarica : 1120 kg/m^3

Relative vapor density at 20 °C : No data available

Solubility : Soluble in water

Log Pow : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

HYDROCHLORIC ACID: alkalis, organic substances, strong oxidants and metals.
PHOSPHORIC ACID: Metals, strong alkalis, aldehydes, sulphides and peroxides.

10.6. Hazardous decomposition products

HYDROCHLORIC ACID: above decomposition temperature hydrochloric acid fumes may develop.

PHOSPHORIC ACID: phosphorus oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Hydrochloric acid (7647-01-0)	
LD50 oral rat	238 - 277 mg/kg
LD50 dermal rabbit	> 5010 mg/kg
LC50 inhalation rat (mg/l)	1.68 mg/l (Exposure time: 1 h)

Phosphoric acid (7664-38-2)	
LD50 oral rat	1530 mg/kg
LD50 dermal rabbit	2740 mg/kg
LC50 inhalation rat (mg/l)	> 850 mg/m³ (Exposure time: 1 h)

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: < 1

Serious eye damage/irritation : Causes serious eye damage.
pH: < 1

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Hydrochloric acid (7647-01-0)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute : Not classified
Aquatic chronic : Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

Hydrochloric acid (7647-01-0)	
1990 Hazardous Air Pollutant (Clean Air Act)	Yes

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG) : UN3264

Packing group : II - Medium Danger

TDG Primary Hazard Classes : 8 - Class 8 - Corrosives

Transport document description : UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric acid, Hydrochloric acid), 8, II

Proper Shipping Name (TDG) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Phosphoric acid, Hydrochloric acid

Hazard labels (TDG) : 8 - Corrosive substances

TDG Special Provisions : 16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(i)(A) of Part 3, Documentation. The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4, Dangerous Goods Safety Marks.
2) subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical: a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the “Food and Drugs Act”.

Explosive Limit and Limited Quantity Index : 1 L

Excepted quantities (TDG) : E2

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 1 L

14.2. Transport information/DOT

DOT

DOT NA no. : UN3264

UN-No.(DOT) : 3264

Packing group (DOT) : II - Medium Danger

DOT Symbols : G - Identifies PSN requiring a technical name

Transport document description : UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid, Hydrochloric acid), 8, II

Proper Shipping Name (DOT) : Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid, Hydrochloric acid)

Contains Statement Field Selection (DOT) :

Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Division (DOT) : 8

Hazard labels (DOT)	:	8 - Corrosive

Dangerous for the environment	:	No
DOT Special Provisions (49 CFR 172.102)	:	B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	202
DOT Packaging Bulk (49 CFR 173.xxx)	:	242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	30 L
DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	3264
Proper Shipping Name (IMDG)	:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Transport document description (IMDG)	:	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric acid, Hydrochloric acid), 8, II
Class (IMDG)	:	8 - Corrosive substances
Packing group (IMDG)	:	II - substances presenting medium danger

IATA

UN-No. (IATA)	:	3264
Proper Shipping Name (IATA)	:	Corrosive liquid, acidic, inorganic, n.o.s.
Transport document description (IATA)	:	UN 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid, Hydrochloric acid), 8, II
Class (IATA)	:	8 - Corrosives
Packing group (IATA)	:	II - Medium Danger

SECTION 15: Regulatory information

15.1. Canada National regulations

Hydrochloric acid (7647-01-0)
Listed on the Canadian DSL (Domestic Sustances List)

Phosphoric acid (7664-38-2)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Hydrochloric acid (7647-01-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb (gas only)
SARA Section 313 - Emission Reporting	1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

Phosphoric acid (7664-38-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Poly(oxy-1,2-ethanediyl), .alpha.-(2-propylheptyl)-.omega.-hydroxy- **(160875-66-1)**
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Hydrochloric acid (7647-01-0)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Phosphoric acid (7664-38-2)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

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

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture

Product name : Ironsave

1.2. Recommended use and restrictions on use

Corrosion inhibitor to be used with HCl based pickling.

1.3. Supplier

SOPRIN S.r.l.
Via dell'Industria 106
31052 Maserada Sul Piave (TV) - Italy
T (+39) 0422 521025 - F (+39) 0422 521060
soprin@soprin.it (Alessandro Padovan)

1.4. Emergency telephone number

Emergency number : CHEMTREC 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS-US/CAN)

Eye Irrit. 2 H319

Full text of classification categories and H statements : see section 16

2.2. Label elements

GHS-US/CAN labeling

Hazard pictograms :

GHS07

Signal word : Warning

Hazard statements : H319 - Causes serious eye irritation

Precautionary statements : P264 - Wash thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
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

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US/CAN)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification (GHS-CA)	Classification (GHS-US)
2,4-Pentanediol, 2-methyl-	(CAS No) 107-41-5	2 - 2.5	Skin Irrit. 2, H315 Eye Irrit. 2A, H319	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Compound, prop-2-yn-1-ol with methyloxirane	(CAS No) 38172-91-7	< 1	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

First-aid measures after skin contact : Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

First-aid measures after ingestion : Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

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

Symptoms/injuries after inhalation : Vapour inhalation may moderately irritate the upper respiratory trait.

Symptoms/injuries after skin contact : Contact with skin may cause slight irritation.

Symptoms/injuries after eye contact : May cause stinging eyes. Symptoms may include: rubescence, edema, pain and lachrymation.

Symptoms/injuries after ingestion : Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

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 : Carbon dioxide, foam, powder and water spray.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None.

Explosion hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2,4-Pentanediol, 2-methyl- (107-41-5)		
USA - ACGIH	ACGIH TWA (ppm)	25 ppm (vapor fraction)
USA - ACGIH	ACGIH STEL (mg/m³)	10 mg/m³ (inhalable particulate matter, aerosol only)
USA - ACGIH	ACGIH STEL (ppm)	50 ppm (vapor fraction)
Canada (Quebec)	PLAFOND (mg/m³)	121 mg/m³
Canada (Quebec)	PLAFOND (ppm)	25 ppm
Alberta	OEL Ceiling (mg/m³)	121 mg/m³
Alberta	OEL Ceiling (ppm)	25 ppm
British Columbia	OEL Ceiling (ppm)	25 ppm
Manitoba	OEL STEL (mg/m³)	10 mg/m³ (inhalable particulate matter, aerosol only)
Manitoba	OEL STEL (ppm)	50 ppm (vapor fraction)
Manitoba	OEL TWA (ppm)	25 ppm (vapor fraction)
New Brunswick	OEL Ceiling (mg/m³)	121 mg/m³
New Brunswick	OEL Ceiling (ppm)	25 ppm
New Foundland & Labrador	OEL STEL (mg/m³)	10 mg/m³ (inhalable particulate matter, aerosol only)
New Foundland & Labrador	OEL STEL (ppm)	50 ppm (vapor fraction)
New Foundland & Labrador	OEL TWA (ppm)	25 ppm (vapor fraction)
Nova Scotia	OEL STEL (mg/m³)	10 mg/m³ (inhalable particulate matter, aerosol only)
Nova Scotia	OEL STEL (ppm)	50 ppm (vapor fraction)
Nova Scotia	OEL TWA (ppm)	25 ppm (vapor fraction)
Nunavut	OEL Ceiling (ppm)	25 ppm
Northwest Territories	OEL Ceiling (ppm)	25 ppm
Ontario	OEL Ceiling (ppm)	25 ppm
Prince Edward Island	OEL STEL (mg/m³)	10 mg/m³ (inhalable particulate matter, aerosol only)
Prince Edward Island	OEL STEL (ppm)	50 ppm (vapor fraction)
Prince Edward Island	OEL TWA (ppm)	25 ppm (vapor fraction)
Saskatchewan	OEL Ceiling (ppm)	25 ppm

8.2. Exposure controls

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

Hand protection : Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Eye protection : Wear airtight protective goggles

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Color : Colorless

Odor : No data available

Odor threshold : No data available

pH : 5.5

Melting point : No data available

Freezing point : < 0 °C

Boiling point : >100 °C

Flash point : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Flammability (solid, gas) : No data available

Explosion limits : No data available

Explosive properties : No data available

Oxidizing properties : No data available

Vapor pressure : No data available

Relative density : No data available

Relative vapor density at 20 °C : No data available

Specific gravity / density : 1005 kg/m³

Solubility	:	Soluble in water
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

Avoid exposure to sources of heat and naked flames. Avoid moisture.

10.5. Incompatible materials

Strong acids and strong oxidizers.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

2,4-Pentanediol, 2-methyl- (107-41-5)	
LD50 oral rat	3700 mg/kg
LC50 inhalation rat (mg/l)	> 310 mg/m³ (Exposure time: 1 h)

Skin corrosion/irritation	:	Not classified pH: 5.5
Serious eye damage/irritation	:	Causes serious eye irritation. pH: 5.5
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

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute	:	Not classified
Aquatic chronic	:	Not classified

2,4-Pentanediol, 2-methyl- (107-41-5)	
LC50 fish 1	10500 - 11000 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC50 fish 2	10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	2700 - 3700 mg/l (Exposure time: 48 h - Species: Daphnia magna)
Log Pow	< 0.14

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

2,4-Pentanediol, 2-methyl- (107-41-5)	
Log Pow	< 0.14

12.4. Mobility in soil

2,4-Pentanediol, 2-methyl- (107-41-5)	
Log Pow	< 0.14

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

Not regulated for transport

14.2. Transport information/DOT

DOT

Not regulated for transport

14.3. Air and sea transport

IMDG

Not regulated for transport

IATA

Not regulated for transport

SECTION 15: Regulatory information

15.1. Canada National regulations

2,4-Pentanediol, 2-methyl- (107-41-5)
Listed on the Canadian DSL (Domestic Sustances List)

Compound, prop-2-yn-1-ol with methyloxirane (38172-91-7)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

2,4-Pentanediol, 2-methyl- (107-41-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

2,4-Pentanediol, 2-methyl- (107-41-5)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H319	Causes serious eye irritation

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

Safety Data Sheet

Printing date 02/15/2019 Revised On 02/08/2019

1 Identification of the substance and manufacturer

Trade name: **SPEEDSTRIP™ PAINT REMOVER**

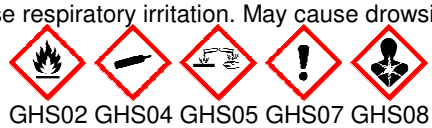
Product code: 065-021-195
Recommended use: Paint and coating removal applications.
Uses advised against: Any that differs from the recommended use.
Manufacturer/Supplier: HUB Industrial Supply, LLC
371 SW Ring Court
Lake City, FL 32025 USA
Phone: 800-743-9401
www.hubindustrial.com
Emergency telephone number: 1-800-255-3924

2 Hazard(s) identification

Classification of the substance or mixture

Flam. Aerosol 1	H222	Extremely flammable aerosol.
Press. Gas	H280	Contains gas under pressure; may explode if heated.
Skin Irrit. 2	H315	Causes skin irritation.
Eye Dam. 1	H318	Causes serious eye damage.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Repr. 1B	H360	May damage fertility or the unborn child.
STOT SE 3	H335-H336	May cause respiratory irritation. May cause drowsiness or dizziness.

GHS Hazard pictograms



GHS02 GHS04 GHS05 GHS07 GHS08

Signal word Danger
Hazard statements
Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statements
Obtain special instructions before use.
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.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a poison center/doctor.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Call a poison center/doctor if you feel unwell.
Take off contaminated clothing and wash it before reuse.
Store in a well-ventilated place.
Store locked up.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Dispose of contents/container in accordance with local/regional/national/international regulations.

3 Composition/information on ingredients

Chemical characterization: Mixtures
Chemical Description: This product is a mixture of the substances listed below with nonhazardous additions.

Dangerous components:

67-64-1	Acetone	41.18%
872-50-4	N-methyl-2-pyrrolidone	16.74%
74-98-6	propane	13.86%
106-97-8	n-butane	8.14%
97-64-3	ethyl lactate	7.83%
5989-27-5	d-limonene	3.35%

4 First-aid measures

After inhalation: If breathing is difficult, administer oxygen.
Supply fresh air and to be sure call for a doctor.
Supply fresh air; consult doctor in case of complaints.
After skin contact: Remove contaminated clothing. Wash exposed area with soap and water.
After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
After swallowing: Rinse mouth with water. Do not induce vomiting.
Most important symptoms and effects: Dizziness

(Contd. on page 2)

Safety Data Sheet

Trade name: SPEEDSTRIP™ PAINT REMOVER

(Contd. of page 1)

Indication of any immediate medical attention needed: No further relevant information available.

5 Fire-fighting measures

Extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray.
Special hazards: Can form explosive gas-air mixtures.
Protective equipment for firefighters: A respiratory protective device may be necessary.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use respiratory protective device against the effects of fumes/dust/aerosol.
Methods and material for containment and cleaning up: Dispose contaminated material as waste according to section 13.

7 Handling and storage

Precautions for safe handling Use only in well ventilated areas.
Storage requirements: Keep away from sources of heat and direct sunlight. Do not warehouse in subfreezing conditions. Store locked up.

8 Exposure controls/personal protection

Components with limit values that require monitoring at the workplace:

67-64-1 Acetone	
PEL (USA)	Long-term value: 2400 mg/m³, 1000 ppm
REL (USA)	Long-term value: 590 mg/m³, 250 ppm
TLV (USA)	Short-term value: 1187 mg/m³, 500 ppm Long-term value: 594 mg/m³, 250 ppm BEI
872-50-4 N-methyl-2-pyrrolidone	
WEEL (USA)	Long-term value: 10 ppm Skin
74-98-6 propane	
PEL (USA)	Long-term value: 1800 mg/m³, 1000 ppm
REL (USA)	Long-term value: 1800 mg/m³, 1000 ppm
TLV (USA)	refer to Appendix F inTLVs&BEIs book; D, EX
106-97-8 n-butane	
REL (USA)	Long-term value: 1900 mg/m³, 800 ppm
TLV (USA)	Short-term value: 2370 mg/m³, 1000 ppm (EX)

Ingredients with biological limit values:

67-64-1 Acetone	
BEI (USA)	50 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)
872-50-4 N-methyl-2-pyrrolidone	
BEI (USA)	100 mg/L Medium: urine Time: end of shift Parameter: 5-Hydroxy-N-methyl-2-pyrrolidone

Hygienic protection: Immediately remove all soiled and contaminated clothing.
Wash hands after use.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Do not eat or drink while working.
Breathing equipment: A respirator is generally not necessary when using this product outdoors or in large open areas. In cases where short and/or long term overexposure exists, a charcoal filter respirator should be worn. If you suspect overexposure conditions exist, please consult an authority on chemical hygeine.
Hand protection: Nitrile gloves.
The glove material must be impermeable and resistant to the substance.
Eye protection: Tightly sealed goggles

9 Physical and chemical properties

Appearance: Aerosol.
Odor: Aromatic
Odor threshold: Not determined.

pH-value: Not determined.
Melting point/Melting range Undetermined.
Boiling point: -44 °C (-47.2 °F)

Flash point: -19 °C (-2.2 °F)

(Contd. on page 3)

Safety Data Sheet

Printing date 02/15/2019 Revised On 02/08/2019

Trade name: SPEEDSTRIP™ PAINT REMOVER

(Contd. of page 2)

Flammability (solid, gas): Extremely flammable.
Decomposition temperature: Not determined.
Auto igniting: Product is not self-igniting.
Danger of explosion: In use, may form flammable/explosive vapour-air mixture.
Lower Explosion Limit: 1.3 Vol %
Upper Explosion Limit: 10.9 Vol %
Vapor pressure: Not determined.
Relative Density: Between 0.77 and 0.85 (Water equals 1.00)
Vapor density Not determined.
Evaporation rate Not applicable.
Partition coefficient: n-octonal/water: Not determined.
Solubility: Not determined.
Viscosity: Not determined.
VOC content (less exempt solvents): 42.1 %
Water: 0.4 %

10 Stability and reactivity

Reactivity: Stable at normal temperatures.
Conditions to avoid: Do not allow can to exceed 120 degrees Fahrenheit. Do not warehouse in subfreezing temperatures.
Chemical stability: Not fully evaluated.
Possibility of hazardous reactions: No dangerous reactions known.
Incompatible materials: No further relevant information available.
Hazardous decomposition: No dangerous decomposition products known.

11 Toxicological information

LD/LC50 values that are relevant for classification:

872-50-4 N-methyl-2-pyrrolidone		
Oral	LD50	3,600 mg/kg (rat)
Dermal	LD50	8,000 mg/kg (rbt)
106-97-8 n-butane		
Inhalative	LC50/4 h	658 mg/l (rat)

Information on toxicological effects: No data available.
Skin effects: Irritant to skin and mucous membranes.
Eye effects: Irritating effect.
Sensitization: Sensitization possible through skin contact.

12 Ecological information

Aquatic toxicity: Hazardous for water, do not empty into drains.
Persistence and degradability: The product is degradable after prolonged exposure to natural weathering processes.
Other information: This product does not contain any chlorofluorocarbons (CFC's), hydrochlorofluorocarbons (HCFC's), perfluorocarbons (PFC's), heavy metals (chromium, lead, cadmium), or chlorinated solvents.
Bioaccumulative potential: No further relevant information available.
Mobility in soil: No further relevant information available.
Ecotoxical effects:
Remark: Toxic for fish
Other adverse effects: No further relevant information available.

13 Disposal considerations

Dispose of in accordance with local, state, and federal regulations. Do not puncture, incinerate, or compact. Partially empty cans must be disposed of responsibly. Do not heat or cut empty containers with electric or gas torches.
Recommendation: Completely empty cans should be recycled.

14 Transport information

UN-Number UN1950
DOT N/A
DOT Consumer Commodity ORM-D
Aerosols, flammable
ADR 1950 Aerosols, ENVIRONMENTALLY HAZARDOUS
Transport hazard class(es):
Class 2.1
Marine pollutant: Yes
Symbol (fish and tree)
Special precautions for user: Warning: Gases
EMS Number: F-D,S-U
Packaging Group: --
UN "Model Regulation": UN1950, Aerosols, ENVIRONMENTALLY HAZARDOUS, 2.1

(Contd. on page 4)

Safety Data Sheet

Printing date 02/15/2019 Revised On 02/08/2019

Trade name: SPEEDSTRIP™ PAINT REMOVER

(Contd. of page 3)

15 Regulatory information

SARA Section 355 (extremely hazardous substances):

None of the ingredients in this product are listed.

SARA Section 313 (Specific toxic chemical listings):

872-50-4	N-methyl-2-pyrrolidone

Toxic Substances Control Act (TSCA): All hazardous ingredients for this product are found on the inventory list of substances.

Consumer Product Safety Comission (CPSC): This product complies with 16 CFR 1303 and does not contain more than 90 ppm of lead.

California Proposition 65 chemicals known to cause cancer:

None of the ingredients in this product are listed.

California Proposition 65 chemicals known to cause birth defects or reproductive harm: 872-50-4 N-methyl- pyrrolidone

872-50-4	N-methyl-2-pyrrolidone

CANADIAN ENVIRONMENTAL PROTECTION ACT: All hazardous ingredients for this product appear on the Canadian Domestic Substance List.

EPA:

67-64-1	Acetone	I

16 Other information

Contact: Regulatory Affairs

SAFETY DATA SHEET

SC0405000

Section 1. Identification

Product name : SP™405 Paint & Adhesive Remover Aerosol

Product code : SC0405000

Other means of identification : Not available.

Product type : Aerosol.

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

Paint or paint related material.

Manufacturer : Sprayon Products Group
101 W. Prospect Avenue,
Cleveland, Ohio 44115

Emergency telephone number of the company : US / Canada: (800) 424-9300
Mexico: SETIQ 01-800-00-214-00 / (52) 55-5559-1588 24 hours / 365 days a year

Product Information Telephone Number : US / Canada: (800) 247-3266
Mexico: Not Available

Regulatory Information Telephone Number : US / Canada: (216) 566-2902
Mexico: Not Available

Transportation Emergency Telephone Number : US / Canada: (800) 424-9300
Mexico: SETIQ 01-800-00-214-00 / (52) 55-5559-1588 24 hours / 365 days a year

Section 2. Hazards identification

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

Classification of the substance or mixture : FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1

Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 13.2%
Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 13.2%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 44.4%

GHS label elements

Section 2. Hazards identification

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
Causes serious eye irritation.
Causes skin irritation.
May damage the unborn child.
Suspected of causing cancer.
May be fatal if swallowed and enters airways.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Use only outdoors or in a well-ventilated area. Do not breathe dust or mist. Wash hands thoroughly after handling. Pressurized container: Do not pierce or burn, even after use.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

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 all local, regional, national and international regulations.

Supplemental label elements

DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY.

Please refer to the SDS for additional information. Keep out of reach of children. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

Section 3. Composition/information on ingredients

Ingredient name	% by weight	CAS number
1-Methyl-2-Pyrrolidone	≥25 - ≤50	872-50-4
Propane	≤10	74-98-6
Butane	<9.8	106-97-8
Coconut Oil Diethanolamide	≤10	68603-42-9

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

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

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 4. First aid measures

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

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

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

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

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

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

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

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

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Extremely flammable aerosol. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

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

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	CAS #	Exposure limits
1-Methyl-2-Pyrrolidone	872-50-4	**AIHA WEEL (United States, 7/2018). Absorbed through skin.** TWA: 10 ppm 8 hours.
Propane	74-98-6	**NIOSH REL (United States, 10/2016).** TWA: 1000 ppm 10 hours. TWA: 1800 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 1000 ppm 8 hours. TWA: 1800 mg/m³ 8 hours. **ACGIH TLV (United States, 3/2019). Oxygen Depletion [Asphyxiant]. Explosive potential.**
Butane	106-97-8	**NIOSH REL (United States, 10/2016).** TWA: 800 ppm 10 hours. TWA: 1900 mg/m³ 10 hours. **ACGIH TLV (United States, 3/2019). Explosive potential.** STEL: 1000 ppm 15 minutes.
Coconut Oil Diethanolamide	68603-42-9	None.

Occupational exposure limits (Canada)

Ingredient name	CAS #	Exposure limits
N-Methyl pyrrolidone	872-50-4	**CA Ontario Provincial (Canada, 1/2018).** TWA: 400 mg/m³ 8 hours.
Normal propane	74-98-6	**CA Alberta Provincial (Canada, 6/2018).** 8 hrs OEL: 1000 ppm 8 hours. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 1000 ppm 8 hours. TWAEV: 1800 mg/m³ 8 hours. **CA Ontario Provincial (Canada, 1/2018).** TWA: 1000 ppm 8 hours. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 1250 ppm 15 minutes. TWA: 1000 ppm 8 hours. **CA British Columbia Provincial (Canada, 5/2019). Oxygen Depletion [Asphyxiant]. Explosive potential.**
Butane	106-97-8	**CA Alberta Provincial (Canada, 6/2018).** 8 hrs OEL: 1000 ppm 8 hours. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 800 ppm 8 hours. TWAEV: 1900 mg/m³ 8 hours. **CA Ontario Provincial (Canada, 1/2018).** TWA: 800 ppm 8 hours.

		CA Saskatchewan Provincial (Canada, 7/2013). STEL: 1250 ppm 15 minutes. TWA: 1000 ppm 8 hours. **CA British Columbia Provincial (Canada, 5/2019). Explosive potential.** STEL: 1000 ppm 15 minutes.

Occupational exposure limits (Mexico)

	CAS #	Exposure limits
Propane	74-98-6	**NOM-010-STPS-2014 (Mexico, 4/2016).** TWA: 1000 ppm 8 hours.
Butane	106-97-8	**NOM-010-STPS-2014 (Mexico, 4/2016).** TWA: 1000 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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

Individual protection measures

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

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

Skin protection

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

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

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

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

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Not available.

Odor : Not available.

Odor threshold : Not available.

pH : 7

Melting point/freezing point : Not available.

Boiling point/boiling range : Not available.

Flash point : Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]

Evaporation rate : 0.06 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 0.8%
Upper: 12.3%

Vapor pressure : 101.3 kPa (760 mm Hg) [at 20°C]

Vapor density : 1.55 [Air = 1]

Relative density : 0.87

Solubility : Not available.

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

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Kinematic (40°C (104°F)): <0.205 cm^2/s (<20.5 cSt)

Molecular weight : Not applicable.

Aerosol product

Type of aerosol : Spray

Heat of combustion : 29.429 kJ/g

Section 10. Stability and reactivity

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

Chemical stability : The product is stable.

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

Conditions to avoid : Avoid all possible sources of ignition (spark or flame).

Incompatible materials : No specific data.

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
1-Methyl-2-Pyrrolidone	LD50 Dermal LD50 Oral	Rabbit Rat	8 g/kg 3914 mg/kg	- -
Butane	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
1-Methyl-2-Pyrrolidone	Eyes - Moderate irritant	Rabbit	-	100 mg	-
Coconut Oil Diethanolamide	Eyes - Severe irritant	Rabbit	-	100 Ul	-
	Skin - Moderate irritant	Rabbit	-	300 Ul	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Coconut Oil Diethanolamide	-	2B	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
1-Methyl-2-Pyrrolidone	Category 3	Not applicable.	Respiratory tract irritation
Propane	Category 3	Not applicable.	Narcotic effects
	Category 3	Not applicable.	Respiratory tract irritation
Butane	Category 3	Not applicable.	Narcotic effects
	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Propane	Category 2	Not determined	Not determined
Butane	Category 2	Not determined	Not determined

Aspiration hazard

Name	Result
Propane	ASPIRATION HAZARD - Category 1
Butane	ASPIRATION HAZARD - Category 1

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

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

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

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

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure.

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

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	10904.56 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
1-Methyl-2-Pyrrolidone	Acute LC50 1.23 ppm Fresh water Acute LC50 832 ppm Fresh water	Daphnia - Daphnia magna Fish - Lepomis macrochirus	48 hours 96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

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

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS

Section 14. Transport information

Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	- **ERG No.** 126	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2). **ERG No.** 126	- **ERG No.** 126	-	**Emergency schedules** F-D, S-U

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.

Ship type : Not available.

Pollution category : Not available.

Section 15. Regulatory information

TSCA 5(a)2 proposed significant new use rules: 1-Methyl-2-Pyrrolidone

SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

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

International regulations

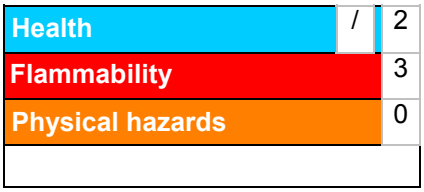
International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory (ENCS): Not determined.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.
Taiwan Chemical Substances Inventory (TCSI): Not determined.
Thailand inventory: Not determined.

Section 15. Regulatory information

Turkey inventory: Not determined.
Vietnam inventory: Not determined.

Section 16. Other information

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



The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE AEROSOLS - Category 1	On basis of test data
GASES UNDER PRESSURE - Compressed gas	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 1B	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Calculation method

History

Date of printing : 11/30/2019

Date of issue/Date of revision : 11/30/2019

Date of previous issue : 8/1/2019

Version : 7

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by the manufacturer, including but not limited to the incorporation of products not specified by the manufacturer, or the use or addition of products in proportions not specified by the manufacturer. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

SAFETY DATA SHEET

C29075000

Section 1. Identification

Product name : TRU-GALV™ ULTRA SILVER (Aerosol)

Product code : C29075000

Other means of identification : Not available.

CAS # : Not applicable.

Product type : Aerosol.

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

Not applicable.

Manufacturer : Mfg. for:
HUB INDUSTRIAL SUPPLY
Lake City, FL 32025

Emergency telephone number of the company : (216) 566-2917

Product Information Telephone Number : (800) 743-9401

Regulatory Information Telephone Number : (216) 566-2902

Transportation Emergency Telephone Number : (800) 424-9300

Section 2. Hazards identification

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

Classification of the substance or mixture : FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 52.3%

GHS label elements

Hazard pictograms :

Signal word : Danger

Section 2. Hazards identification

Hazard statements : Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
Causes serious eye irritation.
May damage the unborn child.
Suspected of causing cancer.
May be fatal if swallowed and enters airways.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Use only outdoors or in a well-ventilated area. Do not breathe dust or mist. Wash hands thoroughly after handling. Pressurized container: Do not pierce or burn, even after use.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

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 all local, regional, national and international regulations.

Supplemental label elements

DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY.

Please refer to the SDS for additional information. Keep out of reach of children. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Acetone	28.05	67-64-1
Lt. Aliphatic Hydrocarbon Solvent	22.08	64742-89-8
Propane	17	74-98-6
Butane	8	106-97-8
1,2,4-Trimethylbenzene	2.11	95-63-6
Light Aromatic Hydrocarbons	1.41	64742-95-6
Toluene	0.48	108-88-3
Cumene	0.28	98-82-8
1-Methyl-2-Pyrrolidone	0.15	872-50-4

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

Section 3. Composition/information on ingredients

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

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths

Section 4. First aid measures

skeletal malformations

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

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

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

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

Specific treatments : No specific treatment.

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

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

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

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.

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

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

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

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	Exposure limits
Acetone	**ACGIH TLV (United States, 3/2015).** TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. **NIOSH REL (United States, 10/2013).** TWA: 250 ppm 10 hours. TWA: 590 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 1000 ppm 8 hours. TWA: 2400 mg/m³ 8 hours.
Lt. Aliphatic Hydrocarbon Solvent	None.
Propane	**NIOSH REL (United States, 10/2013).** TWA: 1000 ppm 10 hours. TWA: 1800 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 1000 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.
Butane	**NIOSH REL (United States, 10/2013).** TWA: 800 ppm 10 hours. TWA: 1900 mg/m³ 10 hours. **ACGIH TLV (United States, 3/2015).** STEL: 1000 ppm 15 minutes.
1,2,4-Trimethylbenzene	**ACGIH TLV (United States, 3/2015).** TWA: 25 ppm 8 hours. TWA: 123 mg/m³ 8 hours. **NIOSH REL (United States, 10/2013).** TWA: 25 ppm 10 hours. TWA: 125 mg/m³ 10 hours.
Light Aromatic Hydrocarbons	None.
Toluene	**OSHA PEL Z2 (United States, 2/2013).** TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 375 mg/m³ 10 hours. STEL: 150 ppm 15 minutes. STEL: 560 mg/m³ 15 minutes. **ACGIH TLV (United States, 3/2015).** TWA: 20 ppm 8 hours.
Cumene	**ACGIH TLV (United States, 3/2015).** TWA: 50 ppm 8 hours. **NIOSH REL (United States, 10/2013).** **Absorbed through skin.** TWA: 50 ppm 10 hours. TWA: 245 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** **Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 245 mg/m³ 8 hours.
1-Methyl-2-Pyrrolidone	**AIHA WEEL (United States, 10/2011).** **Absorbed through skin.** TWA: 10 ppm 8 hours.

Occupational exposure limits (Canada)

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Acetone	**CA Alberta Provincial (Canada, 4/2009).** 8 hrs OEL: 1200 mg/m³ 8 hours. 15 min OEL: 1800 mg/m³ 15 minutes. 8 hrs OEL: 500 ppm 8 hours. 15 min OEL: 750 ppm 15 minutes. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. **CA Ontario Provincial (Canada, 7/2015).** TWA: 500 ppm 8 hours. STEL: 750 ppm 15 minutes. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 500 ppm 8 hours. TWAEV: 1190 mg/m³ 8 hours. STEV: 1000 ppm 15 minutes. STEV: 2380 mg/m³ 15 minutes. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 750 ppm 15 minutes. TWA: 500 ppm 8 hours.
Propane	**CA Alberta Provincial (Canada, 4/2009).** 8 hrs OEL: 1000 ppm 8 hours. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 1000 ppm 8 hours. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 1000 ppm 8 hours. TWAEV: 1800 mg/m³ 8 hours. **CA Ontario Provincial (Canada, 7/2015).** TWA: 1000 ppm 8 hours. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 1250 ppm 15 minutes. TWA: 1000 ppm 8 hours.
Toluene	**CA Alberta Provincial (Canada, 4/2009). Absorbed through skin.** 8 hrs OEL: 50 ppm 8 hours. 8 hrs OEL: 188 mg/m³ 8 hours. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 20 ppm 8 hours. **CA Ontario Provincial (Canada, 7/2015).** TWA: 20 ppm 8 hours. **CA Quebec Provincial (Canada, 1/2014). Absorbed through skin.** TWAEV: 50 ppm 8 hours. TWAEV: 188 mg/m³ 8 hours. **CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.** STEL: 60 ppm 15 minutes. TWA: 50 ppm 8 hours.

Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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

Individual protection measures

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

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

Skin protection

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

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

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

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

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Not available.

Odor : Not available.

Odor threshold : Not available.

pH : 7

Melting point : Not available.

Boiling point : Not available.

Flash point : Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]

Evaporation rate : 5.6 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Section 9. Physical and chemical properties

Lower and upper explosive (flammable) limits : Lower: 0.7%
Upper: 12.8%

Vapor pressure : 13.5 kPa (101.325 mm Hg) [at 20°C]

Vapor density : 1.55 [Air = 1]

Relative density : 0.79

Solubility : Not available.

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

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Kinematic (room temperature): <0.205 cm^2/s (<20.5 cSt)
Kinematic (40°C (104°F)): <0.205 cm^2/s (<20.5 cSt)

Molecular weight : Not applicable.

Aerosol product

Type of aerosol : Spray

Heat of combustion : 30.41 kJ/g

Section 10. Stability and reactivity

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

Chemical stability : The product is stable.

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

Conditions to avoid : Avoid all possible sources of ignition (spark or flame).

Incompatible materials : No specific data.

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Acetone	LD50 Oral	Rat	5800 mg/kg	-
Butane	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours
1,2,4-Trimethylbenzene	LC50 Inhalation Vapor	Rat	18000 mg/m³	4 hours
	LD50 Oral	Rat	5 g/kg	-
Light Aromatic Hydrocarbons	LD50 Oral	Rat	8400 mg/kg	-
Toluene	LC50 Inhalation Vapor	Rat	49 g/m³	4 hours
	LD50 Oral	Rat	636 mg/kg	-
Cumene	LC50 Inhalation Vapor	Rat	39000 mg/m³	4 hours
	LD50 Oral	Rat	1400 mg/kg	-
1-Methyl-2-Pyrrolidone	LD50 Dermal	Rabbit	8 g/kg	-
	LD50 Oral	Rat	3914 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
Acetone	Eyes - Mild irritant	Human	-	186300 parts per million	-
	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	395 milligrams	-
Light Aromatic Hydrocarbons	Eyes - Mild irritant	Rabbit	-	24 hours 100 microliters	-
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
Cumene	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	86 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 10 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
1-Methyl-2-Pyrrolidone	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Toluene	-	3	-
Cumene	-	2B	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Acetone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Lt. Aliphatic Hydrocarbon Solvent	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Propane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Butane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
1,2,4-Trimethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Light Aromatic Hydrocarbons	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Toluene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Cumene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Acetone	Category 2	Not determined	Not determined
Lt. Aliphatic Hydrocarbon Solvent	Category 2	Not determined	Not determined
Propane	Category 2	Not determined	Not determined
Butane	Category 2	Not determined	Not determined
1,2,4-Trimethylbenzene	Category 2	Not determined	Not determined
Light Aromatic Hydrocarbons	Category 2	Not determined	Not determined
Toluene	Category 2	Not determined	Not determined
Cumene	Category 2	Not determined	Not determined

Aspiration hazard

Name	Result
Lt. Aliphatic Hydrocarbon Solvent	ASPIRATION HAZARD - Category 1
Propane	ASPIRATION HAZARD - Category 1
Butane	ASPIRATION HAZARD - Category 1
1,2,4-Trimethylbenzene	ASPIRATION HAZARD - Category 1
Light Aromatic Hydrocarbons	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1
Cumene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

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

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure.

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

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	113208 mg/kg
Inhalation (vapors)	407.5 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 7200000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 6900 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5600 ppm Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
Lt. Aliphatic Hydrocarbon Solvent	Acute LC50 >100000 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
1,2,4-Trimethylbenzene	Acute LC50 4910 µg/l Marine water	Crustaceans - Elasmopus pectenicrus - Adult	48 hours
	Acute LC50 7720 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Toluene	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
Cumene	Acute EC50 2600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 7400 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 10600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2700 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
1-Methyl-2-Pyrrolidone	Acute LC50 1.23 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 832 ppm Fresh water	Fish - Lepomis macrochirus	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetone	-	-	Readily
Light Aromatic Hydrocarbons	-	-	Readily
Toluene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Lt. Aliphatic Hydrocarbon Solvent	-	10 to 2500	high
1,2,4-Trimethylbenzene	-	243	low
Light Aromatic Hydrocarbons	-	10 to 2500	high
Toluene	-	90	low
Cumene	-	35.48	low

Mobility in soil

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

Section 12. Ecological information

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	- **ERG No.** 126	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2. 13-2.17 (Class 2). **ERG No.** 126	- **ERG No.** 126	-	**Emergency schedules (EmS)** F-D, S-U

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.

Section 14. Transport information

Ship type : Not available.

Pollution category : Not available.

Section 15. Regulatory information

SARA 313

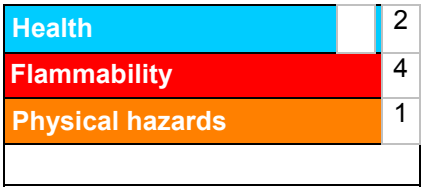
SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

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

Section 16. Other information

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



The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE AEROSOLS - Category 1	On basis of test data
GASES UNDER PRESSURE - Compressed gas	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 1B	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Calculation method

History

Date of printing : 8/11/2016

Date of issue/Date of revision : 8/11/2016

Date of previous issue : 7/26/2016

Version : 6.02

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

Section 16. Other information

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

Notice to reader

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2015 *Reviewed on 04/30/2015*

* 1 Identification

- ***Product identifier***
  - ***Trade name:*** Vibra-TITE® Anti-Seize
    - ***Synonyms:*** 9072 Nickel Anti-Seize
    - ***Part number:*** VT9072
  - ***Relevant identified uses of the substance or mixture*** Threaded connection or slide aniti-seize and lubrication
- ***Details of the supplier of the safety data sheet***
  - ***Manufacturer/Supplier:***
    ND Industries, Inc
    1000 North Crooks Road
    Clawson, MI 48017
    USA
    Telephone: +1-248-288-0000
    Email: info@ndindustries.com
    Website: www.ndindustries.com
  - ***Information department:*** Product safety department
  - ***Emergency telephone number:***
    United States: 1-800-424-9300
    International: +1-703-527-3887

* 2 Hazard(s) identification

- ***Classification of the substance or mixture***


GHS08 Health hazard

Carc. 2	H351	Suspected of causing cancer.


GHS07

Skin Irrit. 2	H315	Causes skin irritation.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Eye Irrit. 2B	H320	Causes eye irritation.

- ***Label elements***
  - ***GHS label elements*** The product is classified and labeled according to the Globally Harmonized System (GHS).
    - ***Hazard pictograms***


GHS07 GHS08

    - ***Signal word*** Warning
    - ***Hazard-determining components of labeling:***
      nickel powder (particle diameter < 1 mm)
    - ***Hazard statements***

H315+H320	Causes skin and eye irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.

    - ***Precautionary statements***

P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P280	Wear protective gloves.
P264	Wash thoroughly after handling.
P201	Obtain special instructions before use.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363	Wash contaminated clothing before reuse.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	If on skin: Wash with plenty of water.
P405	Store locked up.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2015 *Reviewed on 04/30/2015*

Trade name: Vibra-TITE® Anti-Seize

(Contd. of page 1)

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

- ***Classification system:***
  - ***NFPA ratings (scale 0 - 4)***

Health = 3
Fire = 0
Reactivity = 0

  - ***HMIS-ratings (scale 0 - 4)***

Health = *3
Fire = 0
Reactivity = 0

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

* 3 Composition/information on ingredients

- ***Chemical characterization: Mixtures***
  - ***Description:*** Mixture of the substances listed below with nonhazardous additions.
  - ***Dangerous components:***

7440-02-0	nickel powder (particle diameter < 1 mm)	20-30%

* 4 First-aid measures

- ***Description of first aid measures***
  - ***General information:***
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - ***After inhalation:***
    Supply fresh air and to be sure call for a doctor.
    In case of unconsciousness place patient stably in side position for transportation.
    Supply fresh air; consult doctor in case of complaints.
  - ***After skin contact:*** Immediately wash with water and soap and rinse thoroughly.
  - ***After eye contact:*** Rinse opened eye for several minutes under running water.
  - ***After swallowing:*** If symptoms persist consult doctor.
  - ***Information for doctor:***
    - ***Most important symptoms and effects, both acute and delayed*** No further relevant information available.
    - ***Indication of any immediate medical attention and special treatment needed***
      No further relevant information available.

* 5 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:***
    Wear self-contained respiratory protective device.
    Wear fully protective suit.

* 6 Accidental release measures

- ***Personal precautions, protective equipment and emergency procedures***
  Ensure adequate ventilation
  Wear protective clothing.
- ***Environmental precautions:*** Do not allow to enter sewers/ surface or ground water.
- ***Methods and material for containment and cleaning up:***
  Dispose contaminated material as waste according to item 13.
  Dispose of the collected material according to regulations.
- ***Reference to other sections***
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

* 7 Handling and storage

- ***Handling:***
  - ***Information about protection against explosions and fires:*** No special measures required.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2015 *Reviewed on 04/30/2015*

Trade name: Vibra-TITE® Anti-Seize

(Contd. of page 2)

- ***Conditions for safe storage, including any incompatibilities***
  - ***Storage:***
    - ***Requirements to be met by storerooms and receptacles:*** No special requirements.
    - ***Information about storage in one common storage facility:*** Not required.
    - ***Further information about storage conditions:*** None.
- ***Specific end use(s)*** No further relevant information available.

*
8 Exposure controls/personal protection

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

- ***Components with limit values that require monitoring at the workplace:***	
7440-02-0 nickel powder (particle diameter < 1 mm)	
PEL	Long-term value: 1 mg/m³
REL	Long-term value: 0.015 mg/m³ as Ni; See Pocket Guide App. A
TLV	Long-term value: 1.5* mg/m³ elemental, *inhalable fraction

  - ***Additional information:*** The lists that were valid during the creation were used as basis.
- ***Exposure controls***
  - ***Personal protective equipment:***
    - ***General protective and hygienic measures:***
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
    - ***Protection of hands:***

      Protective gloves

      The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
      Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
      - ***Material of gloves***
        The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
      - ***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:*** Not required.
    - ***Body protection:*** Protective work clothing

*
9 Physical and chemical properties

- ***Information on basic physical and chemical properties***	
- ***General Information***	
- ***Appearance:***	
- ***Form:***	Pasty
- ***Color:***	Silver grey
- ***Odor:***	Characteristic
- ***Odour threshold:***	Not determined.
- ***pH-value:***	Not applicable.
- ***Change in condition***	
- ***Melting point/Melting range:***	Undetermined.
- ***Boiling point/Boiling range:***	Undetermined.
- ***Flash point:***	Not applicable.
- ***Flammability (solid, gaseous):***	Not determined.
- ***Ignition temperature:***	
- ***Decomposition temperature:***	Not determined.
- ***Auto igniting:***	Product is not selfigniting.
- ***Danger of explosion:***	Product does not present an explosion hazard.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2015 *Reviewed on 04/30/2015*

Trade name: Vibra-TITE® Anti-Seize

(Contd. of page 3)

- ***Explosion limits:***	
- ***Lower:***	Not determined.
- ***Upper:***	Not determined.
- ***Vapor pressure:***	Not applicable.
- ***Density:***	Not determined.
- ***Relative density***	Not determined.
- ***Vapour density***	Not applicable.
- ***Evaporation rate***	Not applicable.
- ***Solubility in / Miscibility with***	
- ***Water:***	Insoluble.
- ***Partition coefficient (n-octanol/water):***	Not determined.
- ***Viscosity:***	
- ***Dynamic:***	Not applicable.
- ***Kinematic:***	Not applicable.
- ***Solvent content:***	
- ***Organic solvents:***	0.0 %
- ***Solids content:***	45.0 %
- ***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:*** No further relevant information available.
- ***Hazardous decomposition products:*** No dangerous decomposition products known.

* 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:*** Sensitization possible through skin contact.
  - ***Additional toxicological information:***

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- ***Carcinogenic categories***

	- ***IARC (International Agency for Research on Cancer)***	
7440-02-0	nickel powder (particle diameter < 1 mm)	1
	- ***NTP (National Toxicology Program)***	
7440-02-0	nickel powder (particle diameter < 1 mm)	R
	- ***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.
- ***Additional ecological information:***
  - ***General notes:*** Not known to be hazardous to water.
- ***Results of PBT and vPvB assessment***
  - ***PBT:*** Not applicable.
  - ***vPvB:*** Not applicable.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2015 *Reviewed on 04/30/2015*

Trade name: Vibra-TITE® Anti-Seize

(Contd. of page 4)

- ***Other adverse effects*** No further relevant information available.

13 Disposal considerations

- ***Waste treatment methods***
  - ***Recommendation:*** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- ***Uncleaned packagings:***
  - ***Recommendation:*** Disposal must be made according to official regulations.

14 Transport information

- ***UN-Number***	
- ***DOT, ADN, IMDG, IATA***	not regulated
- ***UN proper shipping name***	
- ***DOT, ADN, IMDG, IATA***	not regulated
- ***Transport hazard class(es)***	
- ***DOT, ADN, IMDG, IATA***	
- ***Class***	not regulated
- ***Packing group***	
- ***DOT, IMDG, IATA***	not regulated
- ***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.
- ***UN "Model Regulation":***	-

* 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):***

7440-02-0	nickel powder (particle diameter < 1 mm)

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

All ingredients are listed.

- ***Proposition 65***
  - ***Chemicals known to cause cancer:***

7440-02-0	nickel powder (particle diameter < 1 mm)

- ***Chemicals known to cause reproductive toxicity for females:***

None of the ingredients is listed.

- ***Chemicals known to cause reproductive toxicity for males:***

None of the ingredients is listed.

- ***Chemicals known to cause developmental toxicity:***

None of the ingredients is listed.

- ***Carcinogenic categories***
  - ***EPA (Environmental Protection Agency)***

None of the ingredients is listed.

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

7440-02-0	nickel powder (particle diameter < 1 mm)	A5

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

7440-02-0	nickel powder (particle diameter < 1 mm)

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

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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/30/2015 *Reviewed on 04/30/2015*

Trade name: Vibra-TITE® Anti-Seize

(Contd. of page 5)

- ***Department issuing SDS:*** ND Industries, Inc. - Safety, Health and Environmental Affaires
- ***Contact:*** Safety, Health and Environmental Affaires
- ***Date of preparation / last revision*** 04/30/2015 / 4
- ***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)
HMIS: Hazardous Materials Identification System (USA)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Carc. 2: Carcinogenicity, Hazard Category 2

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

- ***Disclaimer***

The information set forth is based on information that ND Industries, Incorporated believes to be accurate. No warranty, expressed or implied, is intended. The information is provided solely for your information and consideration and ND Industries Inc. assumes no legal responsibility for use or reliance thereon. In the event of a discrepancy between the information on the non-English document and its English counterpart, the English version shall supersede.

ZACLON LLC
MATERIAL SAFETY DATA SHEET

SECTION 1: MATERIAL IDENTIFICATION

NAME: Zaclon® Wetting Agent A
CHEMICAL FAMILY: Alcohol Ethoxylate

MANUFACTURER / DISTRIBUTOR: PRODUCT INFORMATION PHONE:
Zaclon LLC (800) 356-7327

ADDRESS: TRANSPORTATION EMERGENCY PHONE:
2981 Independence Road CHEMTREC (800) 424-9300
Cleveland, Ohio 44115

SECTION 2: HAZARDS IDENTIFICATION

Emergency Overview: Contact causes severe eye irritation. Contact with skin may cause irritation. May cause irritation of respiratory tract.

Potential Health Effects:

Eyes: Contact can cause moderate to severe irritation and possible injury to eyes.

Skin: This product may cause skin irritation.

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system.

Ingestion: Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS NUMBER	%
HEXYLENE GLYCOL	107-41-5	5-15
WATER	7732-18-5	25-35
ALCOHOL ETHOXYLATES	Proprietary	55-65

SECTION 4: FIRST AID MEASURES

EYE CONTACT - In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

SKIN CONTACT - Wash skin large amounts of water after contact. Remove and wash contaminated clothing before reuse. Call a physician if irritation persists.

INHALATION - If symptoms are experienced, remove to fresh air immediately. Call a physician if symptoms persist. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Seek medical attention immediately.

INGESTION - If a large amount is swallowed, do NOT induce vomiting. Immediately give two or more glasses of water or activated charcoal slurry. Never give anything by mouth to an unconscious person. Call a physician.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Water spray, fog, foam, dry chemical, CO_2.

SPECIAL FIRE FIGHTING INSTRUCTIONS

Evacuate personnel to a safe area. Wear self-contained breathing apparatus approved by MSHA/NIOSH. Wear full protective equipment.

NPCA-HMIS RATINGS

Health	2
Flammability	1
Reactivity	0
Personal Protection	** -

**Personal protection rating to be supplied by the user depending on use conditions

TITLE III HAZARD CLASSIFICATIONS

Acute	Yes
Chronic	No
Fire	No
Reactivity	No
Pressure	No

TSCA INVENTORY STATUS: REPORTED/INCLUDED

SECTION 6: ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Isolate area and keep unnecessary personnel away. Stay up wind and keep out of low areas. Ventilate enclosed spaces before entering.

Environmental Precautions: Prevent further leakage or spillage if safe to do so.

Methods for containment: Prevent entry into waterways, sewers, basements or confined areas if possible.

Methods for cleaning up: Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.

Small Spills---Soak with vermiculate, sand, oil dry or other absorbent material. Shovel or sweep up. Flush spill area with water. (NOTE that Treatment, storage, transportation, and disposal of material must be done in accordance with applicable federal, state and local regulations.)

Large Spills---Dike far ahead of the liquid for later disposal.

NOTE: Review FIRE AND EXPLOSION HAZARDS AND SAFETY PRECAUTIONS before proceeding with clean up.

SECTION 7: HANDLING AND STORAGE CONDITIONS

Handling: Avoid contact with eyes and skin. Wash hands thoroughly after handling.

Storage: Store in cool, well ventilated area.
Keep container tightly closed.

Do not store or consume food, drink or tobacco in area where they may become contaminated with this material.

Freezing will affect physical condition but will not damage effectiveness. Thaw and mix before using.

SECTION 8: Exposure Controls/Personal Protection

EXPOSURE LIMITS
For HEXYLENE GLYCOL (107-41-5)

ACGIH: Ceiling: 25 ppm

OSHA: Ceiling, 25 ppm, 121 mg/m^3

Engineering Controls: Use general ventilation. Local exhaust is suggested for use, where possible, in enclosed or confined spaces.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION Wear safety glasses or coverall chemical splash goggles. Eye wash fountain and emergency showers are recommended.

RESPIRATORS Where there is potential for airborne exposures in excess of applicable limits, wear NOISH/MSHA approved respiratory protection.

PROTECTIVE CLOTHING Where there is potential for skin contact have available and wear as appropriate, impervious gloves, apron, pants, and jacket.

SECTION 9: PHYSICAL DATA

BOILING POINT, 760 mm Hg	>100 °C/212 °F
FLASH POINT, PMCC	>100 °C/212 °F
SPECIFIC GRAVITY	1.03
SOLUBILITY IN WATER 40 WT %	% VOLATILES ~40 WT %
pH INFORMATION 6 to 8 (10% in D.I. Water, 25 C)	ODOR Bland
FORM Liquid, Clear, Viscous (365 cps @ 25 C)	COLOR Colorless to Pale Yellow

SECTION 10: HAZARDOUS REACTIVITY

INSTABILITY Stable in normal conditions

INCOMPATIBILITY Strong oxidizing agents.

DECOMPOSITION Decomposition will not occur in normal conditions; irritating and/or toxic fumes may be emitted upon product decomposition..

POLYMERIZATION Polymerization will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION Not available

SECTION 12: ECOLOGICAL INFORMATION Not available

SECTION 13: DISPOSAL INFORMATION

Dispose of in accordance with all applicable regulations.
All wastes must be handled in accordance with local, state and federal regulations. Regulations vary.

SECTION 14: SHIPPING INFORMATION

DOT/IMO
Proper Shipping Name: Non-Regulated Material
Shipping Containers: 5 gal. P.E. pail; 55 gal. fiber drum with polyethylene liner.

SECTION 15: REGULATORY INFORMATION

U.S. Federal Regulations
US CERCLA Hazardous Substances Reportable Quantity

Acetaldehyde (75-07-0) 1000 lbs.

US EPACRA (SARA Title III) Section 313 – Toxic Chemical de minimus concentration

Acetaldehyde (75-07-0) 0.1%
Nitrilotriacetic acid (NTA) 139-13-9) 0.1%

US EPCRA (SARA Title III) Section 313 – Toxic Listed substance

Acetaldehyde (75-07-0) Listed
Nitrilotriacetic acid (NTA) 139-13-9) Listed

REPORTABLE QUANTITY (RQ): The RQ of this product is 15151515 pounds, based upon Acetaldehyde (75-07-0) which yielded the lowest RQ accounding to the CERCLA ingredient RQ/% of that ingredient in the product formula.

CERCLA SUPERFUND RQ: None

OTHER SARA REGULATIONS: Section 302, Extremely Hazardous: **NO**
Section 311, Hazardous Chemical: **NO**

Inventory Status

Country or Region	Inventory name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Phillippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
U.S. and Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

* A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

State Regulations

California Proposition 65

WARNING: This product may contain a chemical known to the State of California to cause cancer and birth defects or other reproductive harm: ethylene oxide (75-21-8)

US California Proposition 65 – CRT: Listed data/Carcinogenic Substance

Acetaldehyde (75-07-0) Listed 4/1/1988 Carcinogenic
Nitrilotriacetic acid (NTA) 139-13-9) Listed 1/1/1988 Carcinogenic

US New Jersey Community RTK (EHS Survey): Reportable Threshold

Acetaldehyde (75-07-0) 500 lbs.
Nitrilotriacetic acid (NTA) 139-13-9) 500 lbs.

US New Jersey Community RTK Substance: Listed Substance

Acetaldehyde (75-07-0) Substance no. 0001 listed
Hexylene Glycol (107-41-5) Substance no. 1003 listed
Nitrilotriacetic acid (NTA) 139-13-9) Substance no. 1358 listed

US Pennsylvania RTK-Hazardous Substances: Listed Substances

Acetaldehyde (75-07-0) Listed
Hexylene Glycol (107-41-5) Listed
Nitrilotriacetic acid (NTA) 139-13-9) Listed

US Pennsylvania RTK-Hazardous Substances: Special Hazard
Nitrilotriacetic acid (NTA) 139-13-9 Special Hazard

SECTION 16: OTHER INFORMATION

NPCA-HMIS RATINGS

Health	2
Flammability	1
Reactivity	0
Personal Protection	** -

**Personal protection rating to be supplied by the user depending on use conditions

DISCLAIMER:
The data in the Material Safety Data Sheet relates only to the specific material herein and does not relate to use in combination with any other material or in any process. The MSDS is designed only as a guidance for the product to which it applies. To the greatest extent permitted by applicable law, nothing container herein creates any legal obligation including contractual obligations, expressed or implied warranties, including any warranties of merchantability or fitness for particular purpose; or confers any intellectual property rights, including rights to use trademarks or a license to use patents, issued or pending. The information contained herein is based on the manufacturer's own studies and the work of others, and is subject to change at any time without further notice. This data is based on the best knowledge of Zaclon LLC at the time of preparation. There is no warranty, expressed or implied, as to the accuracy, completeness or adequacy of the information container herein, and neither the provider nor the manufacturer (nor the agents, directors, offices, contractors or employees of either) are liable to any party for any damages of any nature, including direct, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy or furnishing of any information in this MSDS or in an other way related (directly or indirectly) to this MSDS. The receipt and use of this information constitutes consent to these terms and conditions.

DATE OF LATEST REVISION/REVIEW: April 2012
PERSON RESPONSIBLE FOR MSDS: R. M. Woods

Zaclon LLC
2981 Independence Rd.
Cleveland, Ohio 44115
(800) 356-7327 or 216-271-1601

ZACLON® WETTING AGENT A

ZACLON® Wetting Agent A is especially prepared for use in acidic surface preparation baths such as acid rinse water and preflux solutions. The optimum use concentration range is 0.01 to 0.03% by volume (0.1 gallon to 0.3 gallon Wetting Agent A per 1000 gallons [0.1L to 0.3L Wetting Agent A per 1000L] preflux or rinse solution). To assure better mixing of the viscous wetting agent, it should be blended in ten parts of hot water before adding to large galvanizing plant tanks. Excessive agitation will cause excess foam.

Used in the preflux, Wetting Agent A will assure complete coverage of the work immersed in the bath with a preflux film and better drainage when it is withdrawn. Complete coverage will help improve zinc coating quality while better drainage will reduce preflux consumption and, by assisting drying, reduce spattering at the kettle. A thin foam blanket on the preflux bath will insulate the bath to reduce heating costs.

Used in the acid rinse water Wetting Agent A will improve rinsing and reduce dragout of contaminants such as acid, sulfates and iron into your preflux solution.

ZACLON® Wetting Agent A is not recommended for use in hydrochloric or sulfuric acid pickling baths. Pickling and stripping action cause evolution of hydrogen gas which can be trapped in the foam bubbles of the Wetting Agent A making the foam flammable.

PERSONAL SAFETY AND FIRST AID

HEALTH HAZARDS
ZACLON® Wetting Agent A causes irritation of the eyes, skin, nose, and throat. Overexposure to these products may cause liver and anaesthetic effects and may cause dizziness, headache, and nausea.

SAFETY PRECAUTIONS
Avoid contact with the eyes and skin. Avoid breathing mists or vapors.

FIRST AID
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. For skin, flush with water.

If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen, and call a physician.

If swallowed, do not induce vomiting. Immediately give two glasses of water, or activated charcoal slurry. Never give anything by mouth to an unconscious person. Call a physician.

INSTRUCTIONS TO PHYSICIANS
To prepare activated charcoal slurry, suspend 50 g activated charcoal in 400 ml water in plastic bottle and shake well. Administer 5 ml/kg, or 350 ml for an average adult.

Due to changing governmental regulations, such as those of the Department of Transportation, Department of Labor, U.S. Environmental Protection Agency and the Food and Drug Administration, references herein to governmental regulations may be superseded. You should consult and follow the current governmental regulations, such as Hazardous Classification, Labeling, Food Use Clearances, Worker Exposure Limitations and Waste Disposal Procedures for the up-to-date requirements for the products described in this literature.

CONTACTING ZACLON LLC

For placing orders or requesting additional product information, please contact us as shown below.

Zaclon LLC
2981 Independence Road
Cleveland, Ohio 44115

www.zaclon.com

Karin Rosati, Customer Service Manager
k.rosati@zaclon.com
800 356-7327

Robert Woods, Galvanizing Products Manager
rwoods@zaclon.com
216-496-4449

Ammonium Chloride Granular
Safety Data Sheet

SECTION 1: Identification

1.1. Product identifier

Product name : Ammonium Chloride Granular (G, C Grades)

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US/CAN Classification

Acute toxicity (oral) Category 4 H302
Serious eye damage/eye irritation Category 2A H319

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labeling

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 - Harmful if swallowed
H319 - Causes serious eye irritation

Precautionary statements : P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P337+P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Ammonium chloride	(CAS No) 12125-02-9	99.5-100	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : Immediately wash the affected area with plenty of soap and water for a minimum of 15 minutes. Remove any contaminated clothing. Get immediate medical attention. Redness and sores may develop if contaminated area was not attended to immediately or improper washing was not thorough.

First-aid measures after eye contact : Flush eyes immediately with copious amounts of water for at least 15 minutes. Keep eyelids apart while irrigating the eyes. Get medical attention immediately.

First-aid measures after ingestion : Do not induce vomiting. Give large quantities of water or milk. Call a physician. Never give anything by mouth to an unconscious person.

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

Symptoms/injuries after inhalation : Inhalation of excessive concentrations of vapor, fumes, and/or dust produces irritation of the upper respiratory tract resulting in coughing, excessive spitting and choking sensation. Reactions in humans have usually been limited to mild irritation or inflammation of the nose and throat.

Symptoms/injuries after skin contact : Ammonium chloride may cause skin irritation, or dermatitis on skin exposed for prolonged periods.

Symptoms/injuries after eye contact : Ammonium Chloride, including vapor, can cause irritation and inflammation of the eyes. Permanent damage to the eye can occur if substance is not immediately flushed from the eye.

Symptoms/injuries after ingestion : May be harmful if swallowed.

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 : Water, water fog, carbon dioxide (CO2), dry chemical.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Fumes of nitrogen oxides, hydrogen chloride and possibly ammonia gas may be evolved during a fire.

Explosion hazard : None known.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Sweep up and recycle into process if contamination does not present a problem. Use appropriate protective equipment if dust is generated or contact with eyes or skin is expected. Flush residues and liquid to holding area for neutralization before discharge.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation/exhaustion at the workplace. Avoid dust generation. Avoid contact with skin and eyes. Do not allow product to enter sewage system or water bodies.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly sealed and in the original container.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium chloride (12125-02-9)		
USA - ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (fume)
USA - ACGIH	ACGIH STEL (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VECD (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³ (fume)
Alberta	OEL STEL (mg/m³)	20 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	10 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	20 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	20 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	20 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	10 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	20 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	20 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	10 mg/m³ (fume)

8.2. Exposure controls

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

Hand protection : Wear impervious gloves to minimize skin contact.

Eye protection : Where chemical safety goggles or equivalent.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Granular nuggets, prills or rods.

Color : No data available

Odor : Odorless.

Odor threshold : No data available

pH : 4.0 - 6.0

Relative evaporation rate (butylacetate=1) : No data available

Melting point : 642 °F (339°C)

Freezing point : No data available

Boiling point : > 212 °F (decomposes at 968°F/520°C)

Flash point : No data available

Self 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	:	No data available
Solubility	:	Water: 100 %
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

Aluminum, zinc, tin and their alloys.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Oral: Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

ATE CA (oral)	500 mg/kg body weight

Ammonium chloride (12125-02-9)	
LD50 oral rat	1650 mg/kg

Skin corrosion/irritation	:	Not classified pH: 4.0 - 6.0
Serious eye damage/irritation	:	Causes serious eye irritation. pH: 4.0 - 6.0
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

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Aquatic acute : Not classified

Aquatic chronic : Not classified

Ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

Not regulated for transport

14.2. Transport information/DOT

DOT

Not regulated for transport

14.3. Air and sea transport

IMDG

Not regulated for transport

IATA

Not regulated for transport

SECTION 15: Regulatory information

15.1. Canada National regulations

Ammonium chloride (12125-02-9)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Ammonium chloride (12125-02-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Ammonium chloride (12125-02-9)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H302	Harmful if swallowed
H319	Causes serious eye irritation

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

Ammonium Chloride Solution
Safety Data Sheet

SECTION 1: Identification

1.1. Product identifier

Product name : Ammonium Chloride Solution

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US/CAN classification

Acute toxicity (oral), Category 4 H302
Serious eye damage/eye irritation, Category 2 H319

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labelling

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 - Harmful if swallowed
H319 - Causes serious eye irritation

Precautionary statements : P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P337+P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Water	(CAS No) 7732-18-5	75 - 80	Not classified	Not classified
Ammonium chloride	(CAS No) 12125-02-9	20 - 25	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust

Full text of classification categories and H statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If large amounts are inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

First-aid measures after ingestion : If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call a physician.

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

Symptoms/injuries after inhalation : None anticipated.

Symptoms/injuries after skin contact : Causes severe burns.

Symptoms/injuries after eye contact : Causes serious eye irritation.

Symptoms/injuries after ingestion : May be harmful if swallowed. May cause nausea, vomiting or acidosis if large amounts are ingested.

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 : As appropriate for combustibles in area (Foam, Dry Chemical, and CO2). Water spray will reduce irritating fumes and gases.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : If evaporated and overheated, 260-315°C (500-600°F), hydrogen chloride and ammonia gases may be released.

Explosion hazard : None known.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid breathing fumes. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a tightly closed container in a dry place.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium chloride (12125-02-9)		
USA - ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (fume)

Ammonium chloride (12125-02-9)		
USA - ACGIH	ACGIH STEL (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VECD (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³ (fume)
Alberta	OEL STEL (mg/m³)	20 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	10 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	20 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	20 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	20 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	10 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	20 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	20 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	10 mg/m³ (fume)

8.2. Exposure controls

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

Hand protection : None required during normal handling conditions.

Eye protection : Use safety glasses.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Clear

Color : White

Odor : Odorless.

Odor threshold : No data available

pH : 3 - 6

Relative evaporation rate (butylacetate=1) : No data available

Melting point : No data available

Freezing point : 10°F (for 20%)/50°F (for 25%)

Boiling point : No data available

Flash point : No data available

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapor pressure : No data available

Relative vapor density at 20 °C : No data available

Specific gravity	:	1.058 - 1.073
Solubility	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None

10.5. Incompatible materials

Incompatible with alkalis, strong oxidants, potassium chlorate.

10.6. Hazardous decomposition products

If evaporated, will decompose with heat, releasing hydrogen chloride and ammonia gases which partially reform ammonium chloride as a dust cloud or smoke.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Harmful if swallowed. Higher ingestion exposures may lead to non-specific discomfort, such as nausea or vomiting; or profound acidosis.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

Ammonium Chloride Solution	
ATE (oral)	500.000 mg/kg bodyweight

Water (7732-18-5)	
LD50 oral rat	> 90 ml/kg

Ammonium chloride (12125-02-9)	
LD50 oral rat	1650 mg/kg

Skin corrosion/irritation	:	Not classified pH: 3 - 6
Serious eye damage/irritation	:	Causes serious eye irritation. pH: 3 - 6
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified Tests for mutagenic activity in bacterial or mammalian cell cultures have been inconclusive with positive results in some studies and negative results in others.

Specific target organ toxicity (single exposure) : Not classified

The compound is not a skin irritant and is not an eye irritant in animals. Toxic effects described in animals from short exposures by ingestion include effects on acid-base balance and water metabolism. Toxic effects in animals occurring only with inhalation exposures are lower respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Not classified

Chronic aquatic toxicity : Not classified

Ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG) : UN3082

Packing group : III - Minor Danger

TDG Primary Hazard Classes : 9 - Class 9 - Miscellaneous Products, Substances or Organisms

Transport document description : UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains Ammonium Chloride), 9, III

Proper Shipping Name (TDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Contains Ammonium Chloride

Hazard labels (TDG) : 9 - Miscellaneous dangerous substances and articles

TDG Special Provisions	:	16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(i)(A) of Part 3, Documentation. The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4, Dangerous Goods Safety Marks. 2) subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical: a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the “Food and Drugs Act”. 99 - (1) Mixtures of solids that are not dangerous goods and liquids or solids that are UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, may be handled, offered for transport or transported as UN3077 if there is no visible liquid when the dangerous goods are loaded into a means containment and during transport. (2) These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety. SOR/2014-306 UN3077, UN3082 SOR/2014-306
Explosive Limit and Limited Quantity Index	:	5 L
Excepted quantities (TDG)	:	E1

14.2. Transport information/DOT

DOT

DOT NA no.	:	UN3082
UN-No.(DOT)	:	3082
Packing group (DOT)	:	III - Minor Danger
DOT Symbols	:	G - Identifies PSN requiring a technical name
Transport document description	:	UN3082 Environmentally hazardous substances, liquid, n.o.s. (Contains Ammonium Chloride), 9, III
Proper Shipping Name (DOT)	:	Environmentally hazardous substances, liquid, n.o.s. (Contains Ammonium Chloride)
Contains Statement Field Selection (DOT)	:	
Class (DOT)	:	9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
Division (DOT)	:	9
Hazard labels (DOT)	:	9 - Class 9 (Miscellaneous dangerous materials)

Marine pollutant	:	• Marine pollutant
Dangerous for the environment	:	No

DOT Special Provisions (49 CFR 172.102)	:	8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.”, as appropriate. In addition, for solid materials, special provision B54 applies. 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination. 173 - An appropriate generic entry may be used for this material. 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leakproof when used as bulk packaging. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / (1 + a (tr - tf)) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	155
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	No limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	No limit
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	3082
Proper Shipping Name (IMDG)	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport document description (IMDG)	:	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
Class (IMDG)	:	9 - Miscellaneous dangerous substances and articles
Packing group (IMDG)	:	III - substances presenting low danger

IATA

UN-No. (IATA)	:	3082
Proper Shipping Name (IATA)	:	Environmentally hazardous substance, liquid, n.o.s.
Transport document description (IATA)	:	UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III
Class (IATA)	:	9 - Miscellaneous Dangerous Goods
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1. Canada National regulations

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Sustances List)

Ammonium chloride (12125-02-9)

Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ammonium chloride (12125-02-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Ammonium chloride (12125-02-9)
U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-statements:

H302	Harmful if swallowed
H319	Causes serious eye irritation

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

Zinc Chloride
Safety Data Sheet

SECTION 1: Identification

1.1. Product identifier

Product name : Zinc Chloride

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US/CAN Classification

Acute toxicity (oral) Category 4	H302
Skin corrosion/irritation Category 1B	H314
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labeling

Hazard pictograms :

GHS05 GHS07 GHS09

Signal word : Danger

Hazard statements :
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements :
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor/…
P312 - Call a POISON CENTER/doctor if you feel unwell
P330 - If swallowed, rinse mouth
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Zinc chloride	(CAS No) 7646-85-7	94 - 100	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements : see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water.

First-aid measures after eye contact : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

First-aid measures after ingestion : Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do not induce vomiting.

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

Symptoms/injuries after inhalation : May cause respiratory tract irritation.

Symptoms/injuries after skin contact : Causes severe skin burns.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Harmful if swallowed.

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 : In a remote area, use water fog. Carbon dioxide (CO2). Powder. Foam.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Avoid raising powdered materials into airborne dust. To clean the floor and all objects contaminated by this material, use water.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with eyes, skin and clothing. Use personal protective equipment as required. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Do not expose to temperatures exceeding 50°C/122°F. Keep only in original container. Store in dry protected location to prevent any moisture contact. Storage area: Store at ambient temperature. Store in tightly closed containers. Store under dry conditions. Store in a place accessible by authorized persons only. Store away from heat/moisture.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Zinc chloride (7646-85-7)		
USA - ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (fume)
USA - ACGIH	ACGIH STEL (mg/m³)	2 mg/m³ (fume)
USA - OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	1 mg/m³ (fume)
Alberta	OEL STEL (mg/m³)	2 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	1 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	2 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	2 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	1 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	2 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	1 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	2 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	1 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	2 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	1 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	2 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	2 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	1 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	2 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	1 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	2 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	1 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	2 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	1 mg/m³ (fume)

8.2. Exposure controls

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

Hand protection : Wear impervious gloves to minimize skin contact.

Eye protection : Protective goggles.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : White powder

Odor : Odorless

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	287 °C
Freezing point	:	No data available
Boiling point	:	732 °C
Flash point	:	No data available
Self ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	2.93 g/cm3
Solubility	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

Cyanides, strong alkalis

10.6. Hazardous decomposition products

Hydrochloric acid fumes. ZnO.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Oral: Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

ATE CA (oral)	500 mg/kg body weight

Zinc chloride (7646-85-7)	
LD50 oral rat	1100 mg/kg

Skin corrosion/irritation	:	Causes severe skin burns and eye damage.
Serious eye damage/irritation	:	Eye damage, category 1, implicit
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

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Aquatic acute : Very toxic to aquatic life.

Aquatic chronic : Very toxic to aquatic life with long lasting effects.

Zinc chloride (7646-85-7)	
BCF fish 1	16000

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Zinc chloride (7646-85-7)	
BCF fish 1	16000

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG) : UN2331

Packing group : III - Minor Danger

TDG Primary Hazard Classes : 8 - Class 8 - Corrosives

Transport document description : UN2331 ZINC CHLORIDE, ANHYDROUS, 8, III

Proper Shipping Name (TDG) : ZINC CHLORIDE, ANHYDROUS

Hazard labels (TDG) : 8 - Corrosive substances

Explosive Limit and Limited Quantity Index : 5 kg

Excepted quantities (TDG) : E1

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 25 kg

Marine pollutant : Yes (IMDG only)

14.2. Transport information/DOT

DOT

DOT NA no. : UN2331

UN-No.(DOT) : 2331

Packing group (DOT) : III - Minor Danger

Transport document description	:	UN2331 Zinc chloride, anhydrous, 8, III
Proper Shipping Name (DOT)	:	Zinc chloride, anhydrous
Contains Statement Field Selection (DOT)	:	
Class (DOT)	:	8 - Class 8 - Corrosive material 49 CFR 173.136
Division (DOT)	:	8
Hazard labels (DOT)	:	8 - Corrosive

Dangerous for the environment	:	Yes
Marine pollutant	:	Yes

DOT Special Provisions (49 CFR 172.102)	:	IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2). IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner. T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2) TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	None
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	213
DOT Packaging Bulk (49 CFR 173.xxx)	:	240
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	25 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	100 kg
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	2331
Proper Shipping Name (IMDG)	:	ZINC CHLORIDE, ANHYDROUS
Transport document description (IMDG)	:	UN 2331 ZINC CHLORIDE, ANHYDROUS, 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Class (IMDG)	:	8 - Corrosive substances
Packing group (IMDG)	:	III - substances presenting low danger

IATA

UN-No. (IATA)	:	2331
Proper Shipping Name (IATA)	:	Zinc chloride, anhydrous
Transport document description (IATA)	:	UN 2331 Zinc chloride, anhydrous, 8, III, ENVIRONMENTALLY HAZARDOUS
Class (IATA)	:	8 - Corrosives
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1.Canada National regulations

Zinc chloride (7646-85-7)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Zinc chloride (7646-85-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Zinc chloride (7646-85-7)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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

Zinc Chloride Solution
Safety Data Sheet

SECTION 1: Identification

1.1. Product identifier

Product name : Zinc Chloride Solution

Other means of identification : Grades: 50%; 50% Ultra; 56%; 62.5%; 68.5%, 70.5%

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US/CAN Classification

Acute toxicity (oral) Category 4	H302
Skin corrosion/irritation Category 1B	H314
Specific target organ toxicity (single exposure) Category 3	H335
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labeling

Hazard pictograms :

GHS05 GHS07 GHS09

Signal word : Danger

Hazard statements :
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements :
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P321 - Specific treatment (see label)
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Zinc chloride	(CAS No) 7646-85-7	50 - 72	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Water	(CAS No) 7732-18-5	28 - 50	Not classified	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse and discard shoes.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

First-aid measures after ingestion : If swallowed, do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

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

Symptoms/injuries after inhalation : Fumes, dust from dried-down product, or mist may cause injury to the respiratory tract. Severe exposure may cause lung damage.

Symptoms/injuries after skin contact : Corrosive to the skin.

Symptoms/injuries after eye contact : Causes eye damage

Symptoms/injuries after ingestion : Harmful if swallowed.

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 : As appropriate for combustibles in area.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May release zinc oxide fumes, zinc chloride fumes, and hydrogen chloride gas in a fire.

Explosion hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Keep personnel removed and upwind of fire. Cool tank/container with water spray.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not get in eyes, on skin, on clothing. Avoid breathing fumes, dust from dried-down product, or mist. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep drums in upright position; do not roll drums on side. Keep containers closed. Store in a well ventilated area.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Zinc chloride (7646-85-7)		
USA - ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (fume)
USA - ACGIH	ACGIH STEL (mg/m³)	2 mg/m³ (fume)
USA - OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	1 mg/m³ (fume)
Alberta	OEL STEL (mg/m³)	2 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	1 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	2 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	2 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	1 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	2 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	1 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	2 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	1 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	2 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	1 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	2 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	2 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	1 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	2 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	1 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	2 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	1 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	2 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	1 mg/m³ (fume)

8.2. Exposure controls

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

Hand protection : Use rubber gloves and apron for routine work. If considerable contact is likely, wear impervious (rubber) clothing or acid suit.

Eye protection : Use chemical splash goggles. A full-length face shield should be worn around galvanizing kettles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear
Colour	:	Water-white
Odour	:	Odorless
Odour threshold	:	No data available
pH	:	50% Grade: 2.01; 62.5% Grade: <1.0; 70° Bé Grade: <1.0; 72° Bé Grade: <1.0
Relative evaporation rate (butylacetate=1)	:	50% Grade: >1; 62.5% Grade: <1; 70° Bé Grade: <1; 72° Bé Grade: <1
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	50% Grade: 120 °C (248 °F); 62.5% Grade: 134 °C (273 °F); 70° Bé Grade: 146 °C (295 °F); 72° Bé Grade: 157 °C (315 °F)
Flash point	:	No data available
Self ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Specific gravity	:	50% Grade: 1.576; 62.5% Grade: 1.814; 70° Bé Grade: 1.933; 72° Bé Grade: 1.985
Solubility	:	100%
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

High temperatures

10.5. Incompatible materials

Incompatible with cyanides (may release toxic HCN gas) and sulfide salts (may release toxic H2 gas).

10.6. Hazardous decomposition products

Not Determined

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Oral: Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

ATE CA (oral)	500 mg/kg body weight

Water (7732-18-5)	
LD50 oral rat	> 90 ml/kg

Zinc chloride (7646-85-7)	
LD50 oral rat	1100 mg/kg

Skin corrosion/irritation	:	Causes severe skin burns and eye damage.
Serious eye damage/irritation	:	Eye damage, category 1, implicit
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.
Specific target organ toxicity – single exposure	:	May cause respiratory irritation. The compound in either solid or solution form, is corrosive to the eyes and skin. Toxic effects described in animals from short exposure include corrosion of mucosal surfaces, liver effects, and kidney effects. Toxic effects in animals occurring only with inhalation exposures, are lower respiratory irritation with pulmonary edema.
Specific target organ toxicity – repeated exposure	:	Not classified Human health effects of overexposure may initially include: eye irritation with discomfort, tearing, or blurring of vision; skin irritation with discomfort or rash; or irritation of the upper respiratory passages. Higher exposures may lead to these effects: skin burns or ulceration; eye irritation with discomfort, tearing, or blurring of vision; temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; possibly modest initial symptoms, followed in hours by severe shortness of breath, requiring prompt medical attention; or fatality from gross overexposure by fume inhalation or by significant ingestion. There are inconclusive or unverified reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.
Aspiration hazard	:	Not classified

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute	:	Very toxic to aquatic life.
Aquatic chronic	:	Very toxic to aquatic life with long lasting effects.

Zinc chloride (7646-85-7)	
BCF fish 1	16000

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Zinc chloride (7646-85-7)	
BCF fish 1	16000

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone	:	Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG)	:	UN1840
Packing group	:	III - Minor Danger

TDG Primary Hazard Classes	:	8 - Class 8 - Corrosives
Transport document description	:	UN1840 ZINC CHLORIDE SOLUTION, 8, III
Proper Shipping Name (TDG)	:	ZINC CHLORIDE SOLUTION
Hazard labels (TDG)	:	8 - Corrosive substances

Explosive Limit and Limited Quantity Index	:	5 L
Excepted quantities (TDG)	:	E1
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	5 L
Marine pollutant	:	Yes (IMDG only)

14.2. Transport information/DOT

DOT

DOT NA no.	:	UN1840
UN-No.(DOT)	:	1840
Packing group (DOT)	:	III - Minor Danger
Transport document description	:	UN1840 Zinc chloride, solution, 8, III
Proper Shipping Name (DOT)	:	Zinc chloride, solution
Contains Statement Field Selection (DOT)	:	
Class (DOT)	:	8 - Class 8 - Corrosive material 49 CFR 173.136
Division (DOT)	:	8
Hazard labels (DOT)	:	8 - Corrosive

Dangerous for the environment	:	Yes
Marine pollutant	:	Yes

DOT Special Provisions (49 CFR 172.102)	:	IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	1840
Proper Shipping Name (IMDG)	:	ZINC CHLORIDE SOLUTION
Transport document description (IMDG)	:	UN 1840 ZINC CHLORIDE SOLUTION, 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Class (IMDG)	:	8 - Corrosive substances
Packing group (IMDG)	:	III - substances presenting low danger

IATA

UN-No. (IATA)	:	1840
Proper Shipping Name (IATA)	:	Zinc chloride solution
Transport document description (IATA)	:	UN 1840 Zinc chloride solution, 8, III, ENVIRONMENTALLY HAZARDOUS
Class (IATA)	:	8 - Corrosives
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1. Canada National regulations

Water (7732-18-5)
Listed on the Canadian DSL (Domestic Sustances List)

Zinc chloride (7646-85-7)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Water (7732-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Zinc chloride (7646-85-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Zinc chloride (7646-85-7)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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

ZAC Flux Solutions (W;C;CS;F;K;K6;Sulfate Control;40-50% Solutions)

Safety Data Sheet

SECTION 1: Identification

1.1. Product identifier

Product name : ZAC Flux Solutions (W;C;CS;F;K;K6;Sulfate Control;40-50% Solutions)

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US/CAN classification

Acute toxicity (oral) Category 4	H302
Skin corrosion/irritation Category 1B	H314
Specific target organ toxicity (single exposure) Category 3	H335
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labelling

Hazard pictograms :

Signal word : Danger

Hazard statements :
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements :
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash ... thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor
P312 - Call a POISON CENTER/doctor if you feel unwell
P321 - Specific treatment (see label)
P330 - Rinse mouth
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Water	(CAS No) 7732-18-5	40 - 50	Not classified	Not classified
Zinc chloride	(CAS No) 7646-85-7	12 - 40	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Ammonium chloride	(CAS No) 12125-02-9	20 - 30	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Comb. Dust
Barium chloride (BaCl2)	(CAS No) 10361-37-2	0.5 - 2.5	Acute Tox. 3 (Oral), H301 Eye Irrit. 2A, H319	Acute Tox. 3 (Oral), H301 Eye Irrit. 2A, H319

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If inhaled, remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse and discard shoes.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

First-aid measures after ingestion : If swallowed, do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

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

Symptoms/injuries after inhalation : May cause respiratory irritation.

Symptoms/injuries after skin contact : Corrosive or irritating to the skin.

Symptoms/injuries after eye contact : Causes eye damage

Symptoms/injuries after ingestion : Harmful if swallowed.

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 : As appropriate for combustibles in area.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Will not burn.

Explosion hazard : None known.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Isolate area. Keep unnecessary personnel away. Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a tightly closed container in a dry place. Do not store with cyanides or sulfides.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium chloride (12125-02-9)		
USA - ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (fume)
USA - ACGIH	ACGIH STEL (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VECD (mg/m³)	20 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	10 mg/m³ (fume)
Alberta	OEL STEL (mg/m³)	20 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	10 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	20 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	20 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	20 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	20 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	20 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	10 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	20 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	20 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	10 mg/m³ (fume)

Zinc chloride (7646-85-7)		
USA - ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (fume)
USA - ACGIH	ACGIH STEL (mg/m³)	2 mg/m³ (fume)
USA - OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³ (fume)
Canada (Quebec)	VEMP (mg/m³)	1 mg/m³ (fume)

Zinc chloride (7646-85-7)		
Alberta	OEL STEL (mg/m³)	2 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	1 mg/m³ (fume)
British Columbia	OEL STEL (mg/m³)	2 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Manitoba	OEL STEL (mg/m³)	2 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	1 mg/m³ (fume)
New Brunswick	OEL STEL (mg/m³)	2 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	1 mg/m³ (fume)
New Foundland & Labrador	OEL STEL (mg/m³)	2 mg/m³ (fume)
New Foundland & Labrador	OEL TWA (mg/m³)	1 mg/m³ (fume)
Nova Scotia	OEL STEL (mg/m³)	2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	1 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	2 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	1 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	2 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³ (fume)
Ontario	OEL STEL (mg/m³)	2 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	1 mg/m³ (fume)
Prince Edward Island	OEL STEL (mg/m³)	2 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	1 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	2 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	1 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	2 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	1 mg/m³ (fume)

8.2. Exposure controls

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

Hand protection : Use neoprene or PVC rubber gloves, apron, boots; long sleeve shirt and pants. If considerable contact is likely, wear impervious neoprene or PVC rubber clothing or acid suit.

Eye protection : Use chemical splash goggles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Clear

Odour : odorless.

Odour threshold : No data available

pH : 2.5 - 4

Relative evaporation rate (butylacetate=1) : < 1

Melting point : No data available

Freezing point : No data available

Boiling point : > 100 °C (>212 °F)

Flash point : No data available

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapour pressure : 24 mm Hg at 20°C (68°F)/49 mm Hg at 37.7 °C (100 °F)

Relative vapour density at 20 °C : No data available

Specific gravity : 1.2 - 1.5

Solubility : Complete

Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None

10.5. Incompatible materials

Incompatible with cyanides and sulfides (may release toxic gases).

10.6. Hazardous decomposition products

At high temperatures, (~343°C; ~650°F) as in intended use, ammonium chloride fumes, zinc oxide fumes, zinc chloride fumes, and ammonia and hydrogen chloride gases may be released.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Oral: Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

ATE CA (oral)	500 mg/kg body weight

Water (7732-18-5)	
LD50 oral rat	> 90 ml/kg

Ammonium chloride (12125-02-9)	
LD50 oral rat	1650 mg/kg

Zinc chloride (7646-85-7)	
LD50 oral rat	1100 mg/kg

Barium chloride (BaCl2) (10361-37-2)	
LD50 oral rat	118 mg/kg

Skin corrosion/irritation	:	Causes severe skin burns and eye damage. pH: 2.5 - 4
Serious eye damage/irritation	:	Eye damage, category 1, implicit pH: 2.5 - 4
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified. Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.

Specific target organ toxicity – single exposure : May cause respiratory irritation.

The product is corrosive to the eyes and corrosive or irritating to skin. Toxic effects described in animals from short exposures include corrosion of mucosal surfaces, liver effects, and kidney effects.

Specific target organ toxicity – repeated exposure : Not classified.

Human health effects of overexposure by inhalation, ingestion, or skin or eye contact may initially include: eye irritation with discomfort, tearing, or blurring of vision; skin irritation with discomfort or rash; or irritation of the upper respiratory passages. Higher exposures may lead to these effects: skin and eye burns or ulceration; temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; possibly modest initial symptoms, followed in hours by severe shortness of breath, requiring prompt medical attention; fatality from gross overexposure by fume inhalation or by significant ingestion. There are inconclusive or unverified reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.

Human health effects of acute over-exposure to barium chloride may include abdominal pain, violent purging with watery and bloody stools, vomiting, muscle twitching, and confusion, followed by reversible muscle paralysis, including paralysis of the respiratory muscles which may be fatal. Chronic overexposure may lead to varying degrees of paralysis of the extremities. Hypertension may also be present. Symptoms of over-exposure will disappear with time as the body eliminates the barium, primarily in the feces. Hypokalemia is often observed; potassium should be administered; large doses may be required.

When the Zaclon® products are heated to high temperatures as those encountered in the galvanizing process, irritating zinc chloride fumes and gaseous hydrogen chloride may be released. Severe exposures may cause pulmonary edema. Heating may also release zinc oxide fumes which may cause metal fume fever.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute : Very toxic to aquatic life.

Aquatic chronic : Very toxic to aquatic life with long lasting effects.

Ammonium chloride (12125-02-9)	
LC50 fish 1	209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

Zinc chloride (7646-85-7)	
BCF fish 1	16000

Barium chloride (BaCl2) (10361-37-2)	
EC50 Daphnia 1	14.5 mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Zinc chloride (7646-85-7)	
BCF fish 1	16000

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG)	:	UN3264
Packing group	:	III - Minor Danger
TDG Primary Hazard Classes	:	8 - Class 8 - Corrosives
Transport document description	:	UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Zinc Chloride and Zinc Ammonium Chloride), 8, III
Proper Shipping Name (TDG)	:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. Contains Zinc Chloride and Zinc Ammonium Chloride
Hazard labels (TDG)	:	8 - Corrosive substances

TDG Special Provisions	:	16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(i)(A) of Part 3, Documentation. The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4, Dangerous Goods Safety Marks. 2) subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical: a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the “Food and Drugs Act”.
Explosive Limit and Limited Quantity Index	:	5 L
Excepted quantities (TDG)	:	E1
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	5 L
Marine pollutant	:	Yes (IMDG only)

14.2. Transport information/DOT

DOT

DOT NA no.	:	UN3264
UN-No.(DOT)	:	3264
Packing group (DOT)	:	III - Minor Danger
DOT Symbols	:	G - Identifies PSN requiring a technical name
Transport document description	:	UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Contains Zinc Chloride and Zinc Ammonium Chloride), 8, III
Proper Shipping Name (DOT)	:	Corrosive liquid, acidic, inorganic, n.o.s. (Contains Zinc Chloride and Zinc Ammonium Chloride)
Contains Statement Field Selection (DOT)	:	
Class (DOT)	:	8 - Class 8 - Corrosive material 49 CFR 173.136
Division (DOT)	:	8
Hazard labels (DOT)	:	8 - Corrosive

Dangerous for the environment	:	Yes

Marine pollutant	:	Yes

DOT Special Provisions (49 CFR 172.102)	:	IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	3264
Proper Shipping Name (IMDG)	:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Transport document description (IMDG)	:	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Class (IMDG)	:	8 - Corrosive substances
Packing group (IMDG)	:	III - substances presenting low danger

IATA

UN-No. (IATA)	:	3264
Proper Shipping Name (IATA)	:	Corrosive liquid, acidic, inorganic, n.o.s.
Transport document description (IATA)	:	UN 3264 Corrosive liquid, acidic, inorganic, n.o.s., 8, III, ENVIRONMENTALLY HAZARDOUS
Class (IATA)	:	8 - Corrosives
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1. Canada National regulations

Water (7732-18-5)
Listed on the Canadian DSL (Domestic Sustances List)

Ammonium chloride (12125-02-9)
Listed on the Canadian DSL (Domestic Sustances List)

Zinc chloride (7646-85-7)
Listed on the Canadian DSL (Domestic Sustances List)

Barium chloride (BaCl2) (10361-37-2)
Listed on the Canadian DSL (Domestic Sustances List)

15.2. US Federal regulations

Water (7732-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ammonium chloride (12125-02-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Zinc chloride (7646-85-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Barium chloride (10361-37-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Ammonium chloride (12125-02-9)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Zinc chloride (7646-85-7)
U.S. - Massachusetts - Right To Know List U.S. - Minnesota - Hazardous Substance List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H301	Toxic if swallowed
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Material name : ZEP BRAKE FLUSH - VOC 20GL

Material number : L93550

Manufacturer or supplier's details

Company : Zep Inc.

Address : 350 Joe Frank Harris Parkway, SE
Emerson, GA 30137

Telephone : 404-352-1680

Emergency telephone numbers

For SDS Information	:	Compliance Services 1-877-428-9937
For a Medical Emergency	:	877-541-2016 Toll Free - All Calls Recorded
For a Transportation Emergency	:	CHEMTREC: 800-424-9300 - All Calls Recorded. In the District of Columbia 202-483-7616

Recommended use of the chemical and restrictions on use

Recommended use : Vehicle Maintenance

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	liquid
Colour	colourless
Odour	hydrocarbon-like

GHS Classification

Flammable liquids : Category 2
Eye irritation : Category 2A
Specific target organ toxicity - single exposure : Category 3 (Central nervous system)

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
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.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P235 Keep cool.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration [%]
acetone	67-64-1	>= 90 - < 100
Naphtha (petroleum), hydrotreated light	64742-49-0	>= 5 - < 10
propan-2-ol	67-63-0	>= 1 - < 3

The exact percentages of disclosed substances are withheld as trade secrets.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.

If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical

advice.

In case of skin contact	:	If skin irritation persists, call a physician. Wash off with soap and water. Wash off immediately with plenty of water for at least 15 minutes. If on clothes, remove clothes. Wash contaminated clothing before re-use.
In case of eye contact	:	If in eyes, rinse with water for 15 minutes. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	:	Effects are dependent on exposure (dose, concentration, contact time). Symptoms may include central nervous system depression, resulting in headache, nausea and/or dizziness. Effects are immediate and delayed. Symptoms may include irritation, redness, pain, and rash. May cause drowsiness or dizziness. Causes serious eye irritation. Review section 2 of SDS to see all potential hazards.
Notes to physician	:	Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon dioxide (CO2) Carbon monoxide Smoke
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must

be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not breathe vapours or spray mist. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Materials to avoid	:	Keep away from oxidizing agents and strongly acid or alkaline materials.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
acetone	67-64-1	TWA	250 ppm	ACGIH
		STEL	500 ppm	ACGIH
		TWA	250 ppm 590 mg/m3	NIOSH REL
		TWA	1,000 ppm 2,400 mg/m3	OSHA Z-1
		TWA	750 ppm 1,800 mg/m3	OSHA P0
		STEL	1,000 ppm 2,400 mg/m3	OSHA P0
		STEL	750 ppm 1,780 mg/m3	CAL PEL
		C	3,000 ppm	CAL PEL
		PEL	500 ppm 1,200 mg/m3	CAL PEL
propan-2-ol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m3	NIOSH REL
		ST	500 ppm 1,225 mg/m3	NIOSH REL
		TWA	400 ppm 980 mg/m3	OSHA Z-1
		TWA	400 ppm 980 mg/m3	OSHA P0
		STEL	500 ppm 1,225 mg/m3	OSHA P0
		PEL	400 ppm 980 mg/m3	CAL PEL
		STEL	500 ppm 1,225 mg/m3	CAL PEL

Biological occupational exposure limits

Component	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
2-PROPANONE	67-64-1	Acetone	Urine	End of shift (As soon as possible after exposure ceases)	25 mg/l	ACGIH BEI
PROPAN-2-OL	67-63-0	Acetone	Urine	End of shift at end of workwee	40 mg/l	ACGIH BEI

				k		

Engineering measures : effective ventilation in all processing areas

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Hand protection
Material : Protective gloves
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	hydrocarbon-like
Odour Threshold	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	No data available
Boiling point	:	55.5 °C
Flash point	:	< -18 °C
Evaporation rate	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	0.77 g/cm3
Solubility(ies)		

Water solubility	:	partly soluble
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	not determined
Thermal decomposition	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Vapours may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials	:	Oxidizing agents Strong acids Alkaline materials
Hazardous decomposition products	:	Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects

Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	Effects are dependent on exposure (dose, concentration, contact time). Symptoms may include central nervous system depression, resulting in headache, nausea and/or dizziness. Effects are immediate and delayed. Symptoms may include irritation, redness, pain, and rash.

Carcinogenicity:

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
OSHA	No component of this product present at levels greater than or

NTP	equal to 0.1% is on OSHA's list of regulated carcinogens. No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method

Components:

acetone:

Acute oral toxicity	:	LD50 Rat: 5,800 mg/kg
Acute inhalation toxicity	:	LC50 Rat: 132 mg/l Exposure time: 3 h
		LC50 Rat: 50.1 mg/l
Acute dermal toxicity	:	LD50 Guinea pig: > 7,426 mg/kg
		LD50 Rabbit: > 7,426 mg/kg

propan-2-ol:

Acute oral toxicity	:	LD50 Oral Rat: 4,396 mg/kg Method: Calculation method

Skin corrosion/irritation

Product:

Remarks: May irritate skin.

Serious eye damage/eye irritation

Product:

Remarks: Severe eye irritation

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water	:	Remarks: No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

Transportation Regulation: 49 CFR (USA):
UN1993, FLAMMABLE LIQUIDS, N.O.S., (ACETONE, HEPTANE), 3, II

Transportation Regulation: IMDG (Vessel):
UN1993, FLAMMABLE LIQUIDS, N.O.S., (ACETONE, HEPTANE), 3, II

Transportation Regulation: IATA (Cargo Air):
UN1993, FLAMMABLE LIQUIDS, N.O.S., (ACETONE, HEPTANE), 3, II

Transportation Regulation: IATA (Passenger Air):
This material is not classified.

Transportation Regulation: TDG (Canada):
UN1993, FLAMMABLE LIQUIDS, N.O.S., (ACETONE, HEPTANE), 3, II

The product as delivered to the customer conforms to packaging requirements for shipment by road under US Department of Transportation (DOT) regulations. Additional transportation classifications noted above are for reference only, and not a certification or warranty of the suitability of the packaging for shipment under these alternative transport regulations.

SECTION 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
acetone	67-64-1	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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

California Prop. 65

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

The components of this product are reported in the following inventories:

DSL	All components of this product are on the Canadian DSL
TSCA	On TSCA Inventory

For information on the country notification status for other regions please contact the manufacturer's regulatory group.

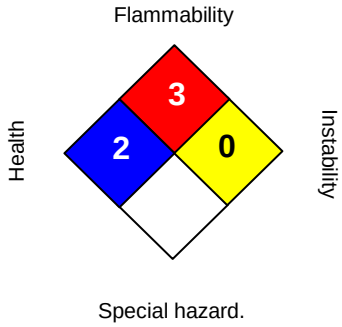
Inventory Acronym and Validity Area Legend:

TSCA (USA), DSL (Canada), NDSL (Canada)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

OSHA - GHS Label Information:

Hazard pictograms :

Signal word : **Danger:**

Hazard statements : Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness.

Precautionary statements :

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ ventilating/ lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/ eye protection/ face protection.
Response: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Storage: Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal: Dispose of contents/container in accordance with local regulation.

Version:	4.0
Revision Date:	05/25/2018
Print Date:	04/29/2021

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. Users should make their own investigations to determine the suitability and applicability of the information for their particular purposes. This SDS has been prepared by the Compliance Services organization supporting this manufacturer, supplier or distributor.

Zep Inc. markets products under well recognized and established brand names such as Zep®, Zep Commercial®,Zep Professional®, Enforcer®, National Chemical™, Selig™, Misty®, Next Dimension™, Petro®, i-Chem®, TimeMist®, TimeWick™, MicrobeMax®, Country Vet®, Konk®, Original Bike Spirits®, Blue Coral®, Black Magic®, Rain-X®, Niagara National™, FC Forward Chemicals®,Rexodan®, Mykal™, and a number of private labeled brands.

SWEEPING COMPOUND HD 250LB

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Material name : SWEEPING COMPOUND HD 250LB

Material number : 000000000000637455

Manufacturer or supplier's details

Company : Zep Inc.

Address : 350 Joe Frank Harris Parkway, SE
Emerson, GA 30137

Telephone : 404-352-1680

Emergency telephone numbers

For SDS Information	:	Compliance Services 1-877-428-9937
For a Medical Emergency	:	877-541-2016 Toll Free - All Calls Recorded
For a Transportation Emergency	:	CHEMTREC: 800-424-9300 - All Calls Recorded. In the District of Columbia 202-483-7616

Recommended use of the chemical and restrictions on use

Recommended use : Floor Care

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	wet powder
Colour	red
Odour	characteristic

GHS Classification

Eye irritation : Category 2A
Carcinogenicity : Category 2

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.
H351 Suspected of causing cancer.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye

protection/ face protection.
Response:
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration [%]
Sawdust	Not Assigned	>= 10 - < 20
Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts	68649-42-3	>= 1 - < 5

The exact percentages of disclosed substances are withheld as trade secrets.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
Get medical attention if symptoms occur.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Remove contaminated clothing and shoes.
If skin irritation persists, call a physician.
Wash off immediately with plenty of water.
Wash contaminated clothing before re-use.

In case of eye contact : Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.

Most important symptoms and effects, both acute and delayed	:	Chronic effects are delayed and symptoms may not be observed during an exposure. Effects are dependent on exposure (dose, concentration, contact time). Effects are immediate and delayed. Symptoms may include irritation, redness, pain, and rash. Causes serious eye irritation. Suspected of causing cancer. Review section 2 of SDS to see all potential hazards.
Notes to physician	:	Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray jet Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon dioxide (CO2) Carbon monoxide Smoke
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Avoid dust formation. Avoid breathing dust.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for	:	Sweep up and shovel into suitable containers for disposal.

containment and cleaning up

Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Avoid formation of respirable particles. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	No smoking. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards. Keep in a cool, well-ventilated place.
Materials to avoid	:	Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : effective ventilation in all processing areas

Personal protective equipment

Respiratory protection	:	Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Hand protection		
Material	:	Protective gloves
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Access to clean water to rinse eyes must be available, options include: eye wash stations or showers, or eye wash bottles with pure water. Safety goggles
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	Wash hands before breaks and at the end of workday. When using do not eat or drink.

When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	wet powder
Colour	:	red
Odour	:	characteristic
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	51.67 °C
Evaporation rate	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	No data available
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	not determined
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	not determined
Thermal decomposition	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	Heat, flames and sparks.

Incompatible materials	:	Strong oxidizing agents
Hazardous decomposition products	:	Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects

Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	Chronic effects are delayed and symptoms may not be observed during an exposure. Effects are dependent on exposure (dose, concentration, contact time). Effects are immediate and delayed. Symptoms may include irritation, redness, pain, and rash.

Carcinogenicity:

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Acute toxicity

No data available

Skin corrosion/irritation

Product:

Remarks: May irritate skin.

Serious eye damage/eye irritation

Product:

Remarks: Irritating to eyes.

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water	:	Remarks: No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological	:	No data available

information

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with local regulations. Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers. Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

Transportation Regulation: 49 CFR (USA):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IMDG (Vessel):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IATA (Cargo Air):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IATA (Passenger Air):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: TDG (Canada):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

The product as delivered to the customer conforms to packaging requirements for shipment by road under US Department of Transportation (DOT) regulations. Additional transportation classifications noted above are for reference only, and not a certification or warranty of the suitability of the packaging for shipment under these alternative transport regulations.

SECTION 15. REGULATORY INFORMATION

TSCA list :

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
chlorine	7782-50-5	10	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
chlorine	7782-50-5	10	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Respiratory or skin sensitisation
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:
Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts 68649-42-3 4 %

California Prop. 65

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

The components of this product are reported in the following inventories:

DSL All components of this product are on the Canadian DSL
TSCA On TSCA Inventory

For information on the country notification status for other regions please contact the manufacturer's regulatory group.

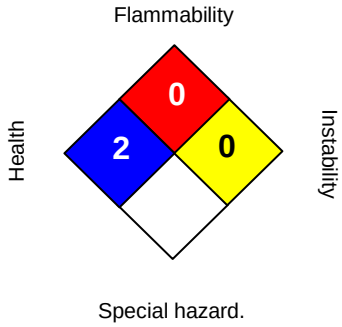
Inventory Acronym and Validity Area Legend:

TSCA (USA), DSL (Canada), NDSL (Canada)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

OSHA - GHS Label Information:

Hazard pictograms :

Signal word : **Warning:**
Hazard statements : Causes serious eye irritation. Suspected of causing cancer.
Precautionary statements :

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash skin thoroughly after handling. Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/ attention. If eye irritation persists: Get medical advice/ attention.

Disposal: Dispose of contents/container in accordance with local regulation.

Version:	2.0
Revision Date:	06/22/2018
Print Date:	08/04/2020

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. Users should make their own investigations to determine the suitability and applicability of the information for their particular purposes. This SDS has been prepared by the Compliance Services organization supporting this manufacturer, supplier or distributor.

Zep Inc. markets products under well recognized and established brand names such as Zep®, Zep Commercial®,Zep Professional®, Enforcer®, National Chemical™, Selig™, Misty®, Next Dimension™, Petro®, i-Chem®, TimeMist®, TimeWick™, MicrobeMax®, Country Vet®,

Konk®, Original Bike Spirits®, Blue Coral®, Black Magic®, Rain-X®, Niagara National™, FC Forward Chemicals®,Rexodan®, Mykal™, and a number of private labeled brands.

oerlikon
metco

Safety Data Sheet

Metco Zinc

Section 1. Product and company identification

Product name : Metco Zinc

Material uses : Metal industry: Suitable for thermal spray coating applications

Supplier : Oerlikon Metco (US) Inc.
1101 Prospect Avenue
Westbury, NY 11590

Telephone no. : (516) 334-1300 (7:30AM - 4:00PM)

In case of emergency : CHEMTREC: 800-424-9300

Calls Outside the United States : **+1 703-741-5970: (USA) 24 hour CHEMTREC International Emergency Response Service**

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Byproducts generated during the thermal spray process are also considered hazardous by the OSHA Hazard Communication Standard.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

This section covers the hazardous materials from which this wire is manufactured.

Ingredient name	%	CAS number
zinc	99.9	7440-66-6

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

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

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

Section 4. First aid measures

These measures apply primarily to the byproducts produced during thermal spray.

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

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

Notes to physician	: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: No specific treatment.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

This section applies primarily to the wire as supplied.

Extinguishing media

Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: None known.

Specific hazards arising from the chemical	: No specific fire or explosion hazard.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: metal oxide/oxides
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Special remarks on explosion hazards	: Not available.

Section 6. Accidental release measures

These measures apply to the wire as supplied and the byproducts produced during thermal spray.

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
For emergency responders	: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill	: Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	: Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

This section applies primarily to the wire as supplied.

Precautions for safe handling

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

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

Section 8. Exposure controls/personal protection

This section contains information which applies during the thermal spray process.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
zinc	None.

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

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

Individual protection measures

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

Eye/face protection : Safety glasses or goggles are recommended when handling this material. During the thermal spray process, safety goggles and dark lenses must be worn.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Rubber or other appropriate gloves should be worn to minimize contact. For hygienic reasons rubber gloves should not be worn for more than 2 hours. During the thermal spray process, heat insulated gloves are recommended.

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

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

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Hearing Protection : Hearing protection that meets local standards should be used. During the thermal spray process, the operator and other personnel close to the spray operation must be protected from excessive noise.

Protective Clothing (Pictograms) :

Section 9. Physical and chemical properties

This section applies primarily to the wire as supplied.

Appearance

Physical state : Solid. [Wire]

Color : Gray.

Odor : Odorless.

Odor threshold : Not applicable.

pH : Not applicable.

Melting point : 419.58°C (787.2°F)

Boiling point : Not available.

Explosive properties : Thermal spray byproducts: May form explosible dust-air mixture if small particles are generated during further processing, handling, or by other means (i.e. Overspray)

Flash point : Not applicable.

Evaporation rate : Not applicable.

Flammability (solid) : Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and shocks and mechanical impacts.

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

Vapor pressure : Not applicable.

Vapor density : Not applicable.

Relative density : 7.14 [Specific gravity]

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

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

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not applicable.

Section 10. Stability and reactivity

This section applies primarily to the wire as supplied.

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

Chemical stability : The product is stable.

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

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : During the thermal spray process, gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by radiation from the arc.

Section 11. Toxicological information

This information applies to the wire as supplied and the byproducts produced during thermal spray.

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
zinc	Skin - Mild irritant	Human	-	72 hours 300 ug I	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

This information applies to the wire as supplied.

Toxicity

Product/ingredient name	Result	Species	Exposure
zinc	Acute EC50 106 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute EC50 10000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute IC50 65 µg/l Marine water	Algae - Nitzschia closterium - Exponential growth phase	4 days
	Acute LC50 65 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 68 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 12.21 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Chronic EC10 27.3 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Chronic EC10 59.2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 178 µg/l Marine water	Crustaceans - Palaemon elegans	21 days
	Chronic NOEC 2.6 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

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

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

Section 13. Disposal considerations

This information applies to the wire as supplied and the byproducts produced during thermal spray.

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

Section 14. Transport information

This information applies to the wire as supplied.

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

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

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not applicable.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: All components are listed or exempted.
Clean Water Act (CWA) 307: zinc

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

	Product name	CAS number	%
Form R - Reporting requirements	zinc	7440-66-6	99.9
Supplier notification	zinc	7440-66-6	99.9

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

State regulations

Massachusetts : The following components are listed: ZINC

New York : The following components are listed: Zinc

New Jersey : The following components are listed: ZINC

Pennsylvania : The following components are listed: ZINC COMPOUNDS

California Prop. 65

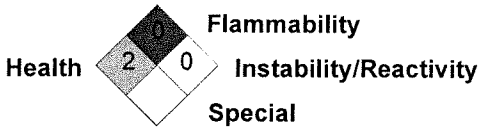
This product does not require a Safe Harbor warning under California Prop. 65.

Inventory list

United States : All components are listed or exempted.

Section 16. Other information

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



Procedure used to derive the classification

Classification	Justification
Not classified.	

History

Date of issue/Date of revision : 8/24/2020

Version : 2.1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

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

MATERIAL SAFETY DATA SHEET

MSDS Name: ENDCOR EPOXY-ESTER ZINC
MSDS Number: 1870
Version Number
MSDS Date: AUG-12-2014

SECTION 1. IDENTIFICATION

Product Name:	ENDCOR EPOXY-ESTER ZINC
CAS Number	N/A
Hazard Rating:	Health: 1 Fire: 2 Reactivity: 1 PPI:
Company Identification:	DAMPNEY CO INC. 85 PARIS ST EVERETT MA 02149-4411
Contact:	CONRAD FOO
Telephone/Fax:	(617) 389-2805 (617) 389-0484
Emergency Phone (24 Hour):	FOR INTERNATIONAL CHEMTREC 001 703 527 3887
Chemtrec (24 Hour):	800-424-9300 CCN6206
Product Class	INDUSTRIAL COATING
Trade Name	ENDCOR EPOXY-ESTER Z
Product Code	1870
UN Number	1263
Shipping Name	PAINT

SECTION 2. HAZARD(S) IDENTIFICATION

Ingredient Name	CAS Number	Percent	TSCA
*ZINC DUST	7440-66-6	73.52	Y
MINERAL SPIRITS	64742-88-7	8.89	Y
AROMATIC HYDROCARBON	64742-95-6	4.94	Y
1,2,4-TRIMETHYLBENZENE	95-63-6	2.43	Y

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

SPECIAL REMARKS SPECIFIC TO THIS RAW MATERIAL
*REPORTABLE QUANTITY SARA III

SECTION 3. PHYSICAL DATA

Form:	Liquid
Appearance/Color:	Gray
Odor:	Solvent
pH Value:	Not Applicable
Boiling Range:	300°F - 400°F
Melting Point:	Not Applicable
Evaporation Rate:	0.011 times Slower than n-Butyl Acetate
Vapor Density:	Heavier than air
Partition Coefficient	Not Available
% Volatile Weight	17.%
% Volatile Volume	56.%
Specific Gravity:	2.71418
Weight/Gallon:	23 LB/GAL
VOC	3.77 LB/GAL
Heavy Elements (ppm)	0.

SECTION 4. FIRE AND EXPLOSION HAZARD DATA

Flammability Class	2
Flash Range:	105°F - 108°F
Explosive Range:	1.%
	12.6%

EXTINGUISHING MEDIA:

Foam, alcohol foam, CO2, dry chemical, and water fog may be ineffective but should be used to cool fire-exposed containers to prevent pressure build up and possible auto-ignition or explosion when exposed to extreme heat.

SPECIAL FIREFIGHTING PROCEDURES:

Use full protection equipment including self-contained breathing apparatus for respiratory protection in fighting fires in enclosed or confined spaces, or as otherwise needed. Minimize breathing gases, vapors fumes or decomposition products. After the organic material has burned, zinc particles suspended in the air may form an explosive mixture; avoid any disturbance which

could cause a dust cloud, such as gas propelled fire extinguishers, in the burning material. Direct the CLASS B extinguishing agent, such as dry chemicals, above the fire to rain down on the burning material. Care should be taken when applying a CLASS B extinguishing agent because some agents can accelerate a fire when most of the organics have been consumed. The metal will glow bright if burning, if this happens isolate the fire with dry inert granular material or CLASS D extinguishing agent then leave it alone. Allow material to become cool before disposal.

UNUSUAL FIRE & EXPLOSION HAZARDS:

During emergency conditions, over-exposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION 5. HEALTH HAZARD DATA

Route	Species	Exposure and Dose
*ZINC DUST		
Inhalation	Unknown	LD50 124. PPM
MINERAL SPIRITS		
Inhalation	Rat	LC50 4 HOURS 5500. PPM
Oral	Rat	LD50 5000. mg/kg
Skin	Rabbit	LD50 3000. mg/kg

PERMISSIBLE EXPOSURE LEVEL:

SEE SECTION VIII

EFFECTS OF OVEREXPOSURE:

High vapor concentrations (> approx. 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, and have other central nervous system effects.

PRIMARY ROUTE(S) OF ENTRY:

(X) Dermal (X) Inhalation ( ) Ingestion

EMERGENCY AND FIRST AID PROCEDURES:

Eyes - flush thoroughly with running water for 15 minutes, including under eyelids. Get medical attention.

Skin - promptly remove contaminated clothing and wash affected areas thoroughly with soap and water. If irritation occurs get medical attention. Wash contaminated clothing

thoroughly before re-use.
Inhalation - if overcome by vapor, remove to an area free from risk of further exposure and call a physician immediately. Administer oxygen or artificial respiration as needed.
Ingestion - do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention immediately.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

SECTION 6. STABILITY AND REACTIVITY MEASURES

Stability: This product is stable
Hazardous Polymerization: Hazardous polymerization will not occur

INCOMPATIBILITY:
Avoid contact with strong oxidizing agents, such as liquid chlorine, concentrated oxygen, or sodium hypochlorite.

CONDITIONS TO AVOID:
Avoid heat, open flames.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon monoxide and unidentified organics may be formed.

SECTION 7. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Before attempting cleanup, refer to hazard caution information in other sections of this sheet.
LARGE SPILLS - notify safety personnel. Eliminate potential sources of ignition. Wear appropriate respirator and protective clothing. Soak up with absorbent such as sand, clay, or other suitable material. Place in non-leaking containers and seal tightly for proper disposal. Ventilate confined spaces. Minimize breathing vapors. Open all windows and doors. Minimize skin contact. Keep product out of sewers and water courses by diking and impounding. Observe precautions for volatile, combustible vapors from absorbed material.
SMALL SPILLS - take up with absorbent material and place in non-leaking containers for proper disposal.

WASTE DISPOSAL METHOD:
Assure conformity with applicable federal, state and local regulations.

==========

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
*ZINC DUST	10.00 mg/M3	N/est	N/est	N/est	10.00 mg/M3
MINERAL SPIRITS	100.00 PPM	N/est	N/est	N/est	100.00 PPM
AROMATIC HYDROCARBON	N/est	N/est	N/est	N/est	N/est
1,2,4-TRIMETHYLBENZENE	N/est	N/est	N/est	N/est	N/est

RESPIRATORY PROTECTION:
Use NIOSH approved respirator as required to prevent over-exposure.
UNCONFINED SPACES - use a vapor/particulate respirator such as NIOSH approved No. TC-23C.
CONFINED SPACES - use a constant flow air-line respirator such as NIOSH approved No. TC-19C.

VENTILATION:
Provide sufficient ventilation to keep air contaminant concentration below current applicable OSHA Permissible Exposure Limit or ACGIH's TLV Limit. No smoking or open lights.

PROTECTIVE GLOVES:
Use chemical-resistant gloves to prevent skin contact.

EYE PROTECTION:
Use splash goggles or face shield to prevent eye contact. Contact lenses pose a special hazard; soft lenses may absorb and all lenses concentrate irritants.

OTHER PROTECTIVE EQUIPMENT:
Use chemical-resistant or other protective outerwear to protect against clothing contamination and skin contact.

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85 Paris Street
Everett, Massachusetts, U.S.A.02149
Email: sales@dampney.com
Telephone: (617) 389 2805

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label**: Zirp Cold Galvanizing**
Product Code(s) : Zirp

Recommended use of the chemical and restrictions on use: Industrial Coating
Use pattern: Professional Use Only
Recommended restrictions: None Known.

Name, address, and telephone number of the manufacturer:
Dampney Company, Inc.
85 Paris Street
Everett, Massachusetts, U.S.A. 02149

Email: sales@dampney.com

Supplier's Telephone #**:** (617) 389-2805
24 Hr. Emergency Tel: Chemtrec 1-800-424-9300 (Within Continental U.S.)

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical
Gray liquid. Solvent odor.

Classification:

Flammable Liquid – Category 3
Specific Target Organ Toxicity - Single Exposure – Category 3 (Central Nervous System)
Aspiration Hazard – Category 1
Carcinogen – Category 2

Label elements

Hazard pictogram(s)

Signal Word
Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.

PREVENTION:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical, ventilating, lighting, mixing, application equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust, fume, gas, mist, vapours, or spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves, protective clothing, eye protection, and face protection.
P281 Use personal protective gloves, protective clothing, eye protection, and face protection.

RESPONSE:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER, doctor or hospital emergency room.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER, doctor, or hospital emergency room if you feel unwell.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use dry chemical, CO2, water spray (fog) or foam to extinguish.

STORAGE:
P403 + P233 + P235 (S) Store in a cool, well-ventilated place. Keep container tightly closed.
P405 Store locked up.

DISPOSAL:
P501 Dispose of contents and empty container in accordance with local, state and federal regulations.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %*
Zinc Dust	7440-66-6	73.52
Mineral Spirits	64742-47-8	8.86
Aromatic Hydrocarbon	64742-95-6	6.84

SECTION 4. FIRST-AID MEASURES

First aid measures for different exposure routes
General advice Avoid contact with eyes, skin, and clothing. Avoid breathing, vapors, mist, or gas.
Eye contact Flush thoroughly with water. If irritation occurs, get medical assistance.
Skin contact Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.
Inhalation Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
Ingestion Seek immediate medical attention. Do not induce vomiting.
Suitable Extinguishing Media Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

SECTION 5. FIRE-FIGHTING MEASURES

Unsuitable Extinguishing Media Straight streams of water.
Specific hazards during firefighting Do not allow run-off from fire fighting to enter drains or water courses.
Specific extinguishing methods Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Use a water spray to cool fully closed containers.
Protective Equipment and Precautions for Firefighters
Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions Eliminate all ignition sources. Maintain adequate ventilation to keep the exposure levels below the DELS.
Environmental precautions Report spills as required by local and federal regulations. Avoid contaminating ground and surface water
Methods for Containment Prevent further leakage or spillage if safe to do so. Dike spill area to contain liquid.
Methods for cleaning up Contain liquid and collect with a non-combustible material.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation.
Conditions for safe storage, including any incompatibilities
Technical measures/Storage conditions Keep containers tightly closed in a cool, well-ventilated place.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

Chemical Name	Standard	Limit
Zinc Dust	None established	None established
Mineral Spirits	RCP – TWA	197 ppm 1200 mg/m3
Aromatic Hydrocarbon	RCP – TWA	19 ppm 100 mg/m3

ACGIH: (American Conference of Governmental Industrial Hygienists)
OSHA: (Occupational Safety & Health Administration)
TWA: Time Weighted Average
PEL: Permissible Exposure Limit

Exposure controls
Engineering Measures Ventilation systems. Use adequate ventilation to keep the exposure levels below the recommended exposure limits.

Individual protection measures, such as personal protective equipment.
General information Eye bath. Safety shower. Washing facilities.
Eye/Face Protection Safety glasses with side-shields.
Skin and body protection Chemical resistant apron. Protective gloves.
Respiratory protection If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable.
Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Gray Liquid
Odour	:	Solvent
Ph	:	No information available
Melting/Freezing point	:	Not available
Boiling point	:	300°F (149°C)
Flash point	:	105°F (40°C)
Evaporation rate (BuAe = 1)	:	0.034 times slower than n-Butyl Acetate
Lower flammable limit (% by vol.)	:	1.0
Upper flammable limit (% by vol.)	:	12.6
Vapour density (air =1)	:	Heavier than air
% Volatile by weight	:	17.0
% Volatile by volume	:	56.0
Specific gravity	:	2.71418 at 60°F (15.6°C)
Weight per gallon	:	23 lbs
Partition coefficient	:	Not determined
VOC	:	3.77 lbs/Gal

SECTION 10. STABILITY AND REACTIVITY

Reactivity Stable under recommended storage conditions
Chemical stability Stable under recommended storage conditions.
Possibility of hazardous reactions
None under normal processing.
Conditions to Avoid Keep away from heat, sparks, flame and other potential ignition sources.
Incompatible Materials Store away from strong oxidizers.
Hazardous Decomposition Products

Carbon monoxide and unidentified organics may be formed.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact Yes
Eye contact Yes
Inhalation Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness.
Ingestion Harmful if swallowed.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Zinc Dust	None established	None established	None established
Mineral Spirits	Rat >5000 mg/kg	Rabbit >5000 mg/kg	Rat 4951 mg/m3
Aromatic Hydrocarbon	Rat 3492 mg/kg	Rabbit >3160 mg/kg	Rat 6193 mg/m3

EFFECTS OF OVEREXPOSURE:
High vapor concentrations (> approx. 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, and have other central nervous system effects.
PRIMARY ROUTE(S) OF ENTRY:
(X) Dermal (X) Inhalation ( ) Ingestion
EMERGENCY AND FIRST AID PROCEDURES:
Eyes - flush thoroughly with running water for 15 minutes, including under eyelids. Get medical attention.
Skin - promptly remove contaminated clothing and wash affected areas thoroughly with soap and water. If irritation occurs get medical attention. Wash contaminated clothing thoroughly before re-use.
Inhalation - if overcome by vapor, remove to an area free from risk of further exposure and call a physician immediately. Administer oxygen or artificial respiration as needed.
Ingestion - do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention immediately.
MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

SECTION 12. ECOLOGICAL INFORMATION

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Zinc Powder 7440-66-6	0.11 -0.271 mg/LEC50 Pseudokirchneriella subcapitata 96h static	0.59 mg/L LC50 Oncorhynchus mykiss 96h semi-static	-	0.139-0.908 mg/LEC50 Daphnia magna 48h Static
Mineral Spirits 64742-47-8	>1000 mg/l EL50 Pseudokirchneriella subcapitata 72h	>1000 mg/l LL50 Oncorhynchus mykiss 96h	-	1000 mg/l ELO Daphnia magna 48h
Aromatic Hydrocarbon 64742-95-6	2.9 mg/l Erl50 Pseudokirchneriella subcapitata 72h	9.2 mg/l LL50 Oncorhynchus mykiss 96h	-	3.2 mg/l EL50 Daphnia magna 48h

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice.
Methods of Disposal : Dispose in accordance with all applicable regulations.

SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label

49CFR/DOT	UN1263	Paint related material	3	III	FLAMMABLE
49CFR/DOT Additional information	When transported as a limited quantity the maximum net capacity specified in 173.150(b)(2) of the subchapter 49CFR for inner packagings may be increased to 5L (1.3 gallons) 172.102(C)(1)(149} special provision 149.				
TDG	UN1263	Paint related material	3	III	FLAMMABLE
TDG Additional information	May be shipped as a Limited Quantity when transported in containers no larger than 5 L (1.3 gallons); in packages not exceeding 30 kg (66 pounds) gross mass.				
IMDG	UN1263	Paint related material	3	III	FLAMMABLE
IMDG Additional information	May be shipped as a Limited Quantity when transported in containers no larger than 5 L (1.3 gallons); in packages not exceeding 30 kg (66 pounds) gross mass.				
ICAO/IATA	UN1263	Paint related material	3	III	FLAMMABLE
ICAO/IATA Additional information	May be shipped as a Limited Quantity when transported in containers no larger than 5 L (1.3 gallons); in packages not exceeding 30 kg (66 pounds) gross mass.				

SECTION 15 - REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). None.

SARA 311/312 Hazard Categories
Immediate Health Hazard Yes
Delayed Health Hazard Yes
Fire Hazard Yes

TSCA (US Toxic Substances Control Act): This product is listed on the TSCA inventory.

Mineral Spirits on the following state RTK lists.
Pennsylvania
New Jersey

SECTION 16. OTHER INFORMATION

NFPA
Health hazard 1
Flammability 2
Reactivity 1

Legend: ACGIH: American Conference of Governmental Industrial Hygienists AICS: Australian Inventory of Chemical Substances
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DOT: Department of Transportation
EC50: Effective Concentration 50%.
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS: Existing and New Chemical Substances
EPA: Environmental Protection Agency

HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
N/Ap: Not Applicable
N/Av: Not Available
NFPA: National Fire Protection Association
NJ: New Jersey
NIOSH: National Institute of Occupational Safety and Health
NOEC: No observable effect concentration
NTP: National Toxicology Program
OECD: Organization for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances
RCRA: Resource Conservation and Recovery Act
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TPQ: Threshold Planning Quantity
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References :

Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
OECD- The Global Portal to Information on Chemical Substances - eChemPortal, 2015
European Chemicals Agency, Classification Legislation, 2015 Material Safety Data Sheet from manufacturer.

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Preparation Date (mm/dd/yyyy): 08/18/2021

Other special considerations for handling
: Provide adequate information, instruction and training for operators.

DISCLAIMER

The information and recommendations contained herein are based on data believed to be correct. However, Dampney makes no warranty

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expressed or implied regarding the accuracy of these data or results to be obtained from the use thereof. Dampney assumes no responsibility for personal injury or property damage caused by use of the material described herein. It is the responsibility of the purchaser or the user to ensure that this material is properly and safely used.

Last Page

SAFETY DATA SHEET

1. Identification

Product identifier	**ZRC and Galvilite Cold Galvanizing Compounds - Aerosol**
Other means of identification	
Product number	10000, 20010
Recommended use	Corrosion protection of iron and steel.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Supplier/Manufacturer	ZRC Worldwide
Address	145 Enterprise Drive, Marshfield, MA 02050
Telephone	781-319-0400
Emergency telephone (CHEMTREC)	703-527-3887 CCN15781
Email	info@zrcworldwide.com

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 1
	Gases under pressure	Liquefied gas
Health hazards	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 1 (central nervous system)
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Combustible dust	

Label elements

Signal word	Danger
Hazard statement	Extremely flammable aerosol. Contains gas under pressure; may explode if heated. Causes serious eye irritation. May cause drowsiness or dizziness. Causes damage to organs (central nervous system) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
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. Do not breathe mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear eye protection/face protection.
Response	If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Zinc	7440-66-6	40 - 50
Acetone	67-64-1	15 - 25
Propane	74-98-6	5 - 15
Methyl ethyl ketone	78-93-3	5 - 10
Stoddard solvent	8052-41-3	5 - 10
Butane	106-97-8	3 - 8
Zinc oxide	1314-13-2	≤ 2

Composition comments All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

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 if irritation develops and persists.

Ingestion In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth thoroughly.

Most important symptoms/effects, acute and delayed May cause drowsiness and dizziness. Narcosis. Headache. Nausea, vomiting. Behavioral changes. Decrease in motor functions. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause mild skin irritation. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed such as: Carbon oxides. Chlorine compounds. Fluorine compounds. Fumes of metal oxides.

Special protective equipment and precautions for firefighters Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire fighting equipment/instructions In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. Fight fire from protected location or safe distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

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

General fire hazards Extremely flammable aerosol. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors/spray. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Stop leak if you can do so without risk. Move aerosol cans to a safe and open place. Isolate area until gas has dispersed. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Prevent product from entering drains.

Pick up undamaged aerosol cans mechanically. Dike leaked material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Scoop up used absorbent into drums or other appropriate container. Following product recovery, flush area with water. Retain and dispose of contaminated wash water.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Explosion-proof general and local exhaust ventilation. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded.

Do not breathe mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Keep away from heat, sparks and open flame. Keep containers tightly closed in a dry, cool and well-ventilated place. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
Propane (CAS 74-98-6)	PEL	1800 mg/m3	
		1000 ppm	
Stoddard solvent (CAS 8052-41-3)	PEL	2900 mg/m3	
		500 ppm	
Zinc oxide (CAS 1314-13-2)	PEL	5 mg/m3	Respirable fraction.
		5 mg/m3	Fume.
		15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	500 ppm	
	TWA	250 ppm	
Butane (CAS 106-97-8)	STEL	1000 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Stoddard solvent (CAS 8052-41-3)	TWA	100 ppm	
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction.
	TWA	2 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Acetone (CAS 67-64-1)	TWA	590 mg/m3	
		250 ppm	
Butane (CAS 106-97-8)	TWA	1900 mg/m3	
		800 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3	
		300 ppm	
	TWA	590 mg/m3	
		200 ppm	
Propane (CAS 74-98-6)	TWA	1800 mg/m3	
		1000 ppm	
Stoddard solvent (CAS 8052-41-3)	Ceiling	1800 mg/m3	
	TWA	350 mg/m3	
Zinc oxide (CAS 1314-13-2)	Ceiling	15 mg/m3	Dust.
	STEL	10 mg/m3	Fume.
	TWA	5 mg/m3	Fume.
		5 mg/m3	Dust.

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	25 mg/l	Acetone	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

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

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation 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. Provide easy access to water supply and eye wash facilities.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Nitrile or neoprene gloves are recommended. Other suitable gloves can be recommended by the glove supplier.

Skin protection

Other

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

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. Check with respiratory protective equipment suppliers.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Aerosol - Pressurized liquid (spray).
Color	Gray.
Odor	Hydrocarbon.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	395.6 °F (202 °C)
Flash point	< 19.4 °F (< -7.0 °C) Tag Open Cup
Evaporation rate	> 1 BuAc (n-Butyl acetate=1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.1
Flammability limit - upper (%)	12.8
Vapor pressure	50 mm Hg (21°C / 70°F)
Vapor density	> 1 (Air=1) (24°C / 77°F)
Relative density	1.2 (H2O=1)
Solubility(ies)	
Solubility (water)	Slightly soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Bulk density	10.01 lb/gal
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
VOC	< 30 %

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contents under pressure. Do not puncture. Keep away from heat, sparks and open flame. In a fire or if heated, a pressure increase will occur and the container may burst or explode. Avoid temperatures exceeding the flash point. Protect against direct sunlight. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Amines. Ammonia. Caustics. Chlorine. Fluorine. Isocyanates. Nitrates. Water.

Hazardous decomposition products	Decomposition is not expected under normal conditions of use and storage. Fire or high temperatures create: Carbon oxides. Fumes of metal oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Causes mild skin irritation. May be absorbed through the skin.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	May cause drowsiness and dizziness. Narcosis. Headache. Nausea, vomiting. Behavioral changes. Decrease in motor functions. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Mild skin irritation. Prolonged exposure may cause chronic effects.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	> 15700 mg/kg, 24 Hours
Inhalation		
Vapor		
LC50	Rat	76 mg/l, 4 Hours
Oral		
LD50	Rat	5800 mg/kg
Butane (CAS 106-97-8)		
Acute		
Inhalation		
LC50	Rat	658 mg/l, 4 Hours
Methyl ethyl ketone (CAS 78-93-3)		
Acute		
Dermal		
LD50	Rat	6400 mg/kg
Inhalation		
Vapor		
LC50	Rat	34.5 mg/l, 4 Hours
Oral		
LD50	Rat	2600 mg/kg
Propane (CAS 74-98-6)		
Acute		
Inhalation		
Gas		
LC50	Rat	> 80000 ppm, 15 Minutes
Zinc (CAS 7440-66-6)		
Acute		
Oral		
LD50	Mouse	> 5 g/kg

Skin corrosion/irritation	Causes mild skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Stoddard solvent (CAS 8052-41-3) 3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

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

Specific target organ toxicity - repeated exposure Causes damage to organs (central nervous system) through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

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

Further information Symptoms may be delayed.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Acute			
Crustacea	LC50	Daphnia pulex	8800 mg/l, 48 Hours
Fish	LC50	Pimephales promelas	7163 mg/l, 96 Hours
Chronic			
Crustacea	NOEC	Daphnia magna	> 79 mg/l, 21 days
Methyl ethyl ketone (CAS 78-93-3)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	5091 mg/l, 48 Hours
Fish	LC50	Pimephales promelas	3220 mg/l, 96 Hours
Zinc (CAS 7440-66-6)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	0.07 mg/l
Fish	LC50	Oncorhynchus mykiss	0.14 mg/l
Zinc oxide (CAS 1314-13-2)			
Aquatic			
Crustacea	LC50	Water flea (Daphnia magna)	0.098 mg/l, 48 Hours

Persistence and degradability The product contains inorganic compounds which are not biodegradable.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Butane (CAS 106-97-8)	2.89
Methyl ethyl ketone (CAS 78-93-3)	0.29
Propane (CAS 74-98-6)	2.36
Stoddard solvent (CAS 8052-41-3)	3.16 - 7.15

Mobility in soil The product is slightly soluble in water. Expected to be slightly to moderately mobile in soil.

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

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D035: Waste Methyl ethyl ketone The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14. Transport information

DOT

UN number	UN1950
UN proper shipping name	Aerosols, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	-
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	N82
Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

IATA

UN number	UN1950
UN proper shipping name	Aerosols, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	-
Environmental hazards	Yes
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS, flammable
Transport hazard class(es)	
Class	2
Subsidiary risk	-
Packing group	-
Environmental hazards	
Marine pollutant	Yes
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

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

15. Regulatory information

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

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	Listed.
Butane (CAS 106-97-8)	Listed.
Methyl ethyl ketone (CAS 78-93-3)	Listed.
Propane (CAS 74-98-6)	Listed.
Zinc (CAS 7440-66-6)	Listed.
Zinc oxide (CAS 1314-13-2)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated “active”.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Gas under pressure
Combustible dust
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Zinc	7440-66-6	40 - 50
Zinc oxide	1314-13-2	≤ 2

Other federal regulations

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

Not regulated.

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

Butane (CAS 106-97-8)
Propane (CAS 74-98-6)

Safe Drinking Water Act (SDWA) Not regulated.

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

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

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

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

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

Acetone (CAS 67-64-1)	Low priority
Methyl ethyl ketone (CAS 78-93-3)	Low priority

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Methyl ethyl ketone (CAS 78-93-3)

Propane (CAS 74-98-6)
Stoddard solvent (CAS 8052-41-3)
Zinc (CAS 7440-66-6)
Zinc oxide (CAS 1314-13-2)

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

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Methyl ethyl ketone (CAS 78-93-3)
Propane (CAS 74-98-6)
Stoddard solvent (CAS 8052-41-3)
Zinc (CAS 7440-66-6)
Zinc oxide (CAS 1314-13-2)

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

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Methyl ethyl ketone (CAS 78-93-3)
Propane (CAS 74-98-6)
Stoddard solvent (CAS 8052-41-3)
Zinc (CAS 7440-66-6)
Zinc oxide (CAS 1314-13-2)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Methyl ethyl ketone (CAS 78-93-3)
Propane (CAS 74-98-6)
Stoddard solvent (CAS 8052-41-3)
Zinc (CAS 7440-66-6)
Zinc oxide (CAS 1314-13-2)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

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

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Methyl ethyl ketone (CAS 78-93-3)
Stoddard solvent (CAS 8052-41-3)
Zinc (CAS 7440-66-6)

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)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates 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	14-December-2013
Revision date	28-February-2020
Version #	05
NFPA ratings	
Disclaimer	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.