

SAFETY DATA SHEET



This Safety Data Sheet (SDS) complies with the requirements of the U.S. Federal Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200, as updated in 2012), the American National Standards Institute (Z400.1, 1998), and equivalent state Standards. It has also been developed in accordance with the Canadian Workplace Hazardous Materials Standard and the United Nations Globally Harmonized System of Classification of Chemicals, as well as European Union requirements under REACH (Registration, Evaluation, Authorization and Restriction of Chemical substances, per EC 1907/2006) and Directive 91/155/EC. Refer to Section 16 of this document for the definition of terms and abbreviations.

SECTION 1: IDENTIFICATION of the Substance/Mixture and of the Company/Undertaking

1.1 PRODUCT IDENTIFIER:

- PRODUCT NAME: **GRIFFITH INSTACLEAN**
- SYNONYMS: Not Applicable
- CHEMICAL NAME/CLASS: Aqueous Inorganic Acid Solution
- PRODUCT CODE: 23.034

1.2 RELEVANT IDENTIFIED USES OF THE MIXTURE OR USES ADVISED AGAINST

- IDENTIFIED USE: Metal Cleaning
- USES ADVISED AGAINST: None Specified

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

- DISTRIBUTED BY: **GROBET FILE CO. OF AMERICA, INC.**
- ADDRESS: 750 Washington Ave.; Carlstadt, NJ 07072
- BUSINESS PHONE: 201-939-6700; Toll Free – 800-847-4188 (USA only)
- EMERGENCY PHONE: 1-800-255-3924 (9 am – 5 pm EST)

1.4 OTHER PERTINENT INFORMATION

- This product in relatively small volume (128 oz and less in size). This SDS has been developed to address safety concerns affecting small volume handling situations and those involving warehouses and other workplaces where large numbers of these items are stored or distributed.

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

REGULATION	CLASSIFICATION
OSHA HAZARD COMMUNICATION (GHS)	Corrosive to metals (Category 1); Skin corrosion (Category 1B); Serious eye damage (Category 1); Specific target organ toxicity - single exposure (Category 3, Respiratory system); Acute toxicity, Oral (Category 4); Carcinogenicity (Category 2); Reproductive toxicity (Category 2); Chronic aquatic toxicity (Category 2)

Insta Clean
710061, 710062

SECTION 2: HAZARDS IDENTIFICATION (Continued)

2.2 LABEL ELEMENTS:

- OSHA/CLP – BASED ON GLOBALLY HARMONIZED SYSTEM

Symbol: To the right.

Signal Word: Danger.

Hazard statement(s)

- Causes severe skin burns and eye damage.
- May cause respiratory irritation.
- Harmful if swallowed.
- Suspected of causing cancer.
- Suspected of damaging fertility or the unborn child.
- Toxic to aquatic life with long lasting effects.
- May be corrosive to metals.



Precautionary statement(s)

PREVENTION: Keep away from children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Avoid breathing vapors, sprays, or mists. Wash skin 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 protective gloves/ protective clothing/ eye protection/ face protection.

RESPONSE: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF 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. ALL EXPOSURES: Immediately call a POISON CENTER or doctor/ physician. IF SPILLED: Collect spillage.

STORAGE: Store locked up. Keep container tightly closed. Store in a well-ventilated place. Store locked up.

DISPOSAL: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 OTHER PERTINENT DATA ON CHEMICAL AND PHYSICAL HAZARDS:

- HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

Health	3*	<u>HMIS Personal Protective Equipment Rating:</u> Occupational Use situations: B/C; Safety glasses and gloves/ body protection suitable to specific circumstances of use should be considered. D: Face shields should be added if splashes/sprays can occur * Contains carcinogen, reproductive toxin.
Flammability	0	
Physical Hazard	0	
Protective Equipment	B/C/d	

- CANADIAN REGULATORY STATUS

- This product is classified as hazardous under Canadian Controlled Products regulations (SOR-88-66).

- It is classified D2-A: Materials Causing Other Toxic Effects/Very Toxic Material; E: Corrosive Material:
- This SDS contains all the information required by the CPR.



SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 SUBSTANCES/MIXTURES

COMPONENT	CAS NUMBER	GHS HAZARD CLASSIFICATION FOR COMPONENT	% (w/w)
Hydrochloric Acid	7647-01-0	Corrosive to Metals (Category 1) Skin Corrosion/Irritation (Category 1B); Eye Damage/Irritation (Category 1); Specific Target Organ Toxicity (Category 3); Respiratory System	Proprietary ¹
Thiourea	62-56-6	Acute toxicity, Oral (Category 4); Carcinogenicity (Category 2); Reproductive toxicity (Category 2); Acute aquatic toxicity (Category 2); Chronic aquatic toxicity (Category 2)	Proprietary
Water and other components less than 1% in concentration within this solution. The remaining components of this product are not classified as hazardous in their existing concentrations.			Balance

SECTION 4: FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

Eyes: Flush with copious amounts of water for 15 minutes. "Roll" eyes during flush. Seek medical attention immediately. **Skin:** Flush area with warm, running water for 15 minutes. **Inhalation:** If sprays or mists of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. **Ingestion:** Contact a Poison Control Center or physician for instructions. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow.

4.2 MOST IMPORTANT ACUTE AND CHRONIC EXPOSURE SYMPTOMS

- **ACUTE:** Depending on the duration of contact, overexposures may mildly to severely irritate the eyes, skin, mucous membranes, and any other exposed tissue. Chemical burns can occur. If low levels of vapors, mists, or sprays of this solution are inhaled, irritation of contaminated areas can cause coughing, nasal congestion and a sore throat. Inhalation of higher levels can cause serious and potentially fatal lung conditions (e.g., pneumonitis, pulmonary edema). If this product is swallowed, burns of the mouth, throat,
- **CHRONIC:** Prolonged or repeated skin overexposure to this product may cause dermatitis (dry, red skin). Prolonged inhalation of vapors or mists generated by this product may cause respiratory disorders (e.g., bronchitis). Thiourea, a component of this product, is a potential skin sensitizer, and it is also suspected of causing cancer and of damaging fertility or the unborn child. Refer to Section 11 (Toxicology Information) for additional information on this product's components.
- **TARGET ORGANS:** Acute - eyes, skin, respiratory system. Chronic – skin, respiratory system, reproductive system,

4.3 INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

- **RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate exposure.
- **MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** Disorders associated with the target organs may be aggravated after either acute or chronic exposures.

SECTION 5: FIREFIGHTING MEASURES

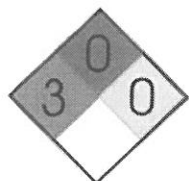
5.1 EXTINGUISHING MEDIA

- **RECOMMENDED FIRE EXTINGUISHING MEDIA:** Water Spray, Water Jet, Dry Powder, Foam, Carbon Dioxide, Halon, or any other.
- **UNSUITABLE FIRE EXTINGUISHING MEDIA:** None known.

¹ The exact percentage of composition has been withheld as a trade secret. All relevant physical and health hazards have been declared, in accordance with regulatory requirements.

SECTION 5: FIREFIGHTING MEASURES (Continued)

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE



NFPA RATING

- **NFPA FLAMMABILITY CLASSIFICATION:** Not flammable.
- **UNUSUAL HAZARDS IN FIRE SITUATIONS:** This product is non-combustible. This product does not significantly contribute to the intensity of a fire. Use extinguishing material suitable to the surrounding fire.

Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

5.3 ADVICE FOR FIREFIGHTERS

- Wear Self Contained Breathing Apparatus and full protective equipment for fire response. Move containers from fire area if it can be done without risk to personnel. Otherwise, use water spray to keep fire-exposed containers cool. Contaminated equipment should be rinsed thoroughly with water before returning to service.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES

- **RESPONSE TO INCIDENTAL RELEASES:** Personnel who have received basic chemical safety training can generally handle small-scale releases (e.g., under 1 gallon). Wear gloves, safety glasses when cleaning-up spills. Use caution during clean-up; contaminated floors and items may be slippery.
- **RESPONSE TO NON-INCIDENTAL RELEASES:** In the event of a non-incident release (more than 1 gallon), Minimum Personal Protective Equipment should be **Level C: triple-gloves, chemical resistant apron, boots, and splash goggles and an Air-Purifying respirator with organic vapor cartridge. Level B which includes the use of Self-Contained Breathing Apparatus, should be worn when oxygen levels are below 19.5% or are unknown.** Absorb spilled liquid with polypads or other suitable absorbent materials. Neutralize residue with sodium bicarbonate or other neutralizing agent for acids. Ensure that the contaminated area is neutralized (pH 5-9) before releasing the area.
- **RESPONSE PROCEDURES FOR ANY RELEASE:** Absorb spilled liquid with polypads or other suitable absorbent materials. Neutralize residue or any potentially contaminated item with sodium bicarbonate or sodium bicarbonate solution.

6.2 ENVIRONMENTAL PRECAUTIONS

- Avoid response actions that can cause a release of a significant amount of the substance (1 liter or more) into the environment.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

- **SPILL RESPONSE EQUIPMENT:** Polypad or other absorbent material. Sodium bicarbonate, as needed, to neutralize area.

6.4 REFERENCES TO OTHER SECTIONS

- **SECTION 8:** For exposure levels and detailed personal protective equipment recommendations.
- **SECTION 13:** For waste handling guidelines.

SECTION 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

- **HYGIENE PRACTICES:** Keep out of reach of children. Follow good chemical hygiene practices. Do not smoke, drink, eat, or apply cosmetics in the chemical use area. Avoid inhalation of vapors, mists, or sprays. Use in well-ventilated area. Avoid contact with skin or eyes. Remove contaminated clothing promptly. Clean up spilled product immediately.
- **HANDLING RECOMMENDATIONS:** Employees must be appropriately trained to use this product safely as needed. Keep containers closed when not in use.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

- **STORAGE RECOMMENDATIONS:** Ensure all containers are correctly labeled. Store containers away from direct sunlight, sources of intense heat, or where freezing is possible. Store this product away from incompatible chemicals (See Section 10, Stability and Reactivity). Empty containers may contain residual material; therefore, empty containers should be handled with care. Material should be stored in secondary containers, or in a diked area, as appropriate. Storage and use areas should be covered with impervious materials. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.
- **INCOMPATIBILITIES:** See Section 10 (Stability and Reactivity).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

- **U.S. NATIONAL EXPOSURE LIMITS:**

COMPONENT	ACGIH TLV	OSHA PEL	NIOSH REL	OTHER
Hydrochloric Acid	C = 2ppm	C = 5 ppm	C = 5 ppm	NE

- **BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS:** There are no Biological Exposure Indices (BEIs) for components of this product.

8.2 EXPOSURE CONTROLS

- **ENGINEERING CONTROLS:** Use this product in well-ventilated environment. Safety showers, eye wash stations, and hand-washing equipment should be available.
- **RESPIRATORY PROTECTION:** None needed under normal conditions of use. Use NIOSH approved respirators if ventilation is inadequate to control mists or sprays. For situations in which significant amounts of splashes, sprays, or mists could be generated, wear an air-purifying respirator with a high-efficiency particulate filter.
- **HAND PROTECTION:** Nitrile or neoprene gloves should be used. If necessary, refer to U.S. OSHA 29 CFR 1910.138, appropriate Standards of Canada, or of the European Economic Community.
- **EYE PROTECTION:** Splash goggles or safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian Standards, or the European Standard EN166.
- **BODY PROTECTION:** Use a body protection appropriate to task (e.g., lab coat, coveralls, or apron). Care should be taken to select protection for potentially exposed areas when prolonged exposure could occur in occupational settings.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

- (a) **APPEARANCE:** Purplish, pink liquid.
(b) **ODOR:** Acidic.
(c) **ODOR THRESHOLD:** Not determined.
(d) **pH:** < 2.0.
(e) **MELTING POINT/FREEZING POINT:** Approx. 0°C (32 °F).
(f) **INITIAL BOILING POINT AND BOILING RANGE:** Approximately 100°C (212°F).
(g) **FLASH POINT:** Not applicable.
(h) **EVAPORATION RATE (water=1):** Approximately 1.
(i) **FLAMMABILITY:** Not flammable.
(j) **UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:** Not applicable.
(k) **VAPOR PRESSURE (mmHg @ 20°C):** Not determined.
VAPOR DENSITY: Not determined.
(m) **RELATIVE DENSITY (water=1):** > 1.0
(n) **SOLUBILITY:** Soluble in water.
(o) **PARTITION COEFFICIENT: N-OCTANOL/WATER:** Not determined.
(p) **AUTO-IGNITION TEMPERATURE:** Not applicable.
(q) **DECOMPOSITION TEMPERATURE:** Not determined.
(r) **VISCOSITY:** Not applicable.
(s) **EXPLOSIVE PROPERTIES:** Not applicable.
(t) **OXIDIZING PROPERTIES:** Not an oxidizer.
- 9.2 OTHER INFORMATION
- **VOC (less water & exempt):** Not applicable.
 - **WEIGHT% VOC:** Not applicable.

SECTION 10: STABILITY AND REACTIVITY

- 10.1 REACTIVITY
- Not reactive under typical conditions of use or handling; contact with water can generate some amount of heat.
- 10.2 CHEMICAL STABILITY
- Normally stable under standard temperatures and pressures.
- 10.3 POSSIBILITY OF HAZARDOUS REACTIONS
- This product is not self-reactive or air-reactive.
 - This product will not undergo hazardous polymerization.
- 10.4 CONDITIONS TO AVOID
- Avoid contact with incompatible chemicals.
- 10.5 INCOMPATIBLE MATERIALS
- This product is not compatible with strong oxidizing agents, caustic materials, and water-reactive materials.
- 10.6 HAZARDOUS DECOMPOSITION PRODUCTS
- Products of thermal decomposition of this product can include carbon monoxide, carbon dioxide and compounds of sulfur and chlorine.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

- **DEGREE OF IRRITATION:** Severe eye and skin irritant, with the potential to cause corrosive damage, depending on duration of exposure.
- **SENSITIZATION:** Thiourea is reported to be a skin sensitizer; prolonged or repeated exposures could lead to redness, irritation, and other allergic-like reactions. Thiourea is also a skin photosensitizer; prolonged or repeated exposure can cause the skin to be more susceptible to the effects of ultraviolet radiation

SECTION 11: TOXICOLOGICAL INFORMATION (Continued)

- **ACUTE TOXICITY:**

- **TOXICOLOGY DATA:** The following data are available for listed components in this product :

- **HYDROCHLORIC ACID**

LC50 (Inhalation-Rat) 3124 ppm
 LCLo (Inhalation-Human) 1300 ppm/30 minutes
 LCLo (Inhalation-Human) 3000 ppm/5 minutes
 LCLo (Inhalation-Rabbit) 4413 ppm/30 minutes:
 LDLo (Oral-Man) 2857 µg/kg: Vascular: BP lowering not characterized in autonomic section; Lungs, Thorax, or Respiration: respiratory depression; Gastrointestinal: changes in structure or function of esophagus
 LD50 (Oral-Rabbit) 900 mg/kg

- **HYDROCHLORIC ACID (Continued)**

LD50 (Intraperitoneal-Mouse) 40142 µg/kg
 LDLo (Oral-Woman) 420 µL/kg: Behavioral: excitement; Cardiac: pulse rate; Kidney, Ureter, Bladder: hematuria
 LDLo (Unreported-Man) 81 mg/k

- **THIOUREA**

LD50 (oral, rat) = 125 mg/kg
 LD50 (oral, rabbit) = 6985mg/kg
 LD50 (dermal, rabbit) > 2800 mg/k kg

- **REVIEW OF ACUTE SYMPTOMS AND EFFECTS:** See Section 2 (Hazards Information) and Section 4 (First-Aid Measures) for further details.

- **EYES:** Can cause severe irritation and corrosive damage. Prolonged contact may cause severe injury.
- **SKIN:** Can cause mild to severe irritation and corrosive damage, depending on duration of contact.
- **INHALATION:** Mists/sprays of this product can cause mild to severe nasal irritation. Corrosive damage is possible, depending on volume inhaled.
- **INGESTION:** Although not anticipated to be a significant route of occupational over-exposures, ingestion of this product may severely irritate the mouth, throat, and other contaminated tissue and cause other adverse health effects. Ingestion of large quantities can cause corrosive tissue damage and be fatal.

- **CHRONIC TOXICITY:**

- **CARCINOGENICITY STATUS:** The following table summarizes the carcinogenicity listing for the components of this product. "NO" indicates that the substance is not considered to be, or suspected to be, a carcinogen by the listed agency.

CHEMICAL	IARC	NTP	NIOSH	OSHA	OTHER
HYDROCHLORIC ACID	NO	NO	NO	NO	IARC-3: Unclassifiable as to Carcinogenicity in Humans TLV-4: Not Classifiable as a human carcinogen.
THIOUREA	NO	R – Reasonably Anticipated to be a Carcinogen.	NO	NO	IARC-3: Unclassifiable as to Carcinogenicity. MAK-3B: Substances of Concern California Prop. 65

- **REPRODUCTIVE TOXICITY INFORMATION:** The components of this product are not reported to cause reproductive effects under typical circumstances of exposure at the concentrations present in this product.
- **MUTAGENIC EFFECTS:** The components of this product may cause mutagenic effects, based on animal *in vitro* testing.
 - **THIOUREA:** Prokaryotes - gene mutation; Plants - chromosome effects; Prokaryotes - other genotoxic effects; Lower eukaryotes - other genotoxic effects; In vivo mammalian, sperm morphology - other genotoxic effects; In vitro mammalian - cell transformation.
- **SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:** Not applicable.
- **SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:** Not applicable.

- **OTHER INFORMATION**

- **TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** None known.
- **ADDITIONAL TOXICOLOGY:** None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY

- Based on available data, this product can be harmful or to contaminated terrestrial plants or animals.
- Based on available data, this product can be harmful or fatal to contaminated aquatic plants or animals.

12.2 PERSISTENCE AND DEGRADABILITY

- When released into the soil, the components of this product are expected to biodegrade, dissipate in soils via oxidation, or otherwise chemically degrade or photo-decompose via solar radiation.

12.3 BIOACCUMULATIVE POTENTIAL

- The components of this product are not anticipated to bioaccumulate in any significant quantities.

12.4 MOBILITY IN SOIL

- It is to be expected this product will have small mobility in soil. Some of the components may get into the soil and, ultimately, the ground water.

SECTION 13: DISPOSAL CONSIDERATION

13.1 WASTE TREATMENT METHODS

- **WASTE HANDLING RECOMMENDATIONS:** Prepare, transport, treat, store, and dispose of waste product according to all applicable local, U.S. State and U.S. Federal regulations, the applicable Canadian standards, or the appropriate standards of the nations of the European Community.
- **PRECIOUS METAL RECLAMATION:** When applicable and practical, users of the product may wish to utilize precious metal reclamation services for final disposition of wastes.

SECTION 14: TRANSPORT INFORMATION

14.1 DANGEROUS GOODS BASIC DESCRIPTION AND OTHER TRANSPORT INFORMATION

- This material must be shipped according to applicable Hazardous Materials Regulations or Dangerous Goods Codes. Please contact the manufacturer if there are questions pertinent to the shipment of this product.

14.2 ENVIRONMENTAL HAZARDS

- None described, as related to transportation.

14.3: SPECIAL PRECAUTIONS FOR USERS

- Not applicable.

14.4: TRANSPORT IN BULK

- Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1: SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE SUBSTANCE OR MIXTURE.

- OTHER IMPORTANT U.S. REGULATIONS

- **U .S. SARA THRESHOLD PLANNING QUANTITY:** Not applicable to Hydrochloric Acid in this concentration.
- **U.S. SARA HAZARD CATEGORIES (SECTION 311/312, 40 CFR 370-21):** ACUTE: Yes; CHRONIC: No; FIRE: No; REACTIVE: No; SUDDEN RELEASE: No
- **U.S. CERCLA REPORTABLE QUANTITY (RQ):** Hydrochloric Acid Solution = 5000 lb (2270 kg)
- **U.S. TSCA INVENTORY STATUS:** All components of this product are listed on the TSCA Inventory.
- **CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) STATUS:** Not applicable.

SECTION 16: OTHER INFORMATION

16.1: INDICATION OF CHANGE.

- **CHANGE INDICATED:** New phone number; volume annotations.
- **ORIGINAL DATE OF ISSUE:** September 10, 2010
- **DATES OF UPDATES:** September 19, 2014

16.2: KEY LITERATURE REFERENCES AND SOURCES FOR DATA

- SAFETY DATA SHEETS FOR COMPONENT PRODUCTS.
- Federal OSHA Hazard Communication Standard: 29 CFR 1910.1200
- SAX – Dangerous Properties of Industrial Materials
- RTECS – Registry of Effects of Toxic Chemicals
- ECHA: European Chemical Hazards Agency <http://echa.europa.eu/en/information-on-chemicals/>
- TOXNET

16.4: ABBREVIATIONS AND ACRONYMS.

ALL SECTIONS: OSHA: U.S. Federal Occupational Safety and Health Administration. WHMIS: Canadian Workplace Hazardous Materials Standard. GHS: Globally Harmonized System of Classification of Chemical Substances. REACH: European Union regulation, Registration, Evaluation, Authorization and Restriction of Chemical substances.

SECTION 2: CAS Number: Chemical Abstract Service Number, which is used by the American chemical Society to uniquely identify a chemical. EINECS: European Inventory of Existing Commercial Substances.

SECTION 3: HAZARDOUS MATERIALS IDENTIFICATION SYSTEM RATING: This is a rating system used by industry to summarize physical and health hazards to chemical users and was originally developed by the National Paint and Coating Association. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.

SECTION 5: NFPA: National Fire Protection Association. NFPA FLAMMABILITY CLASSIFICATION: The NFPA uses the flash point (F.P.) and boiling point (BP) to classify flammable or combustible liquids. Class IA: F.P. below 73°F and BP below 100°F. Class IB: F.P. below 73°F and BP at or above 100°F. Class IC: F.P. at or above 73°F and BP at or above 100°F. Class II: F.P. at or above 100°F and below 140°F. Class IIIA: F.P. at or above 140°F and below 200°F. Class IIIB: F.P. at or above 200°F. NFPA HAZARDOUS MATERIALS RATING: This is a rating system used to summarize physical and health hazards to firefighters. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.

SECTION 8: NE: Not established. ACGIH: American Conference of Government Industrial Hygienists; TWA: Time-Weighted Average (over an 8-hour work day); STEL: Short-Term Exposure Limit (15 minute average, no more than 4-times daily and each exposure separated by one-hour minimally); C: Ceiling Limit (concentration not to be exceeded in a work environment). PEL: Permissible Exposure Limit. NIOSH: National Institute of Occupational Safety and Health; REL: Recommended Exposure Limit; IDLH: Immediately Dangerous to Life and Health Concentrations. *Note:* In July 1992, a court ruling vacated the more protective PELs set by OSHA in 1989. Because OSHA may enforce the more protective levels under the "general duty clause", both the current and vacated levels are presented in this document. ppm: Parts per Million. mg/m³: Milligrams per cubic meter. mppcf: Millions of Particles per Cubic Foot. BEI: Biological Exposure Limit. EL: Exposure Limit (United

Kingdom). Federal Republic of Germany (DFG) Maximum Concentration Values in the Workplace (MAKs)

SECTION 9: pH: Scale (0 to 14) used to rate the acidity or alkalinity of aqueous solutions. For example, a pH value of 0 indicates a strongly acidic solution, pH of 7 indicates a neutral solution, and a pH value of 14 indicates an extremely basic solution. FLASH POINT: Temperature at which a liquid generates enough flammable vapors so that ignition may occur. AUTOIGNITION TEMPERATURE: Temperature at which spontaneous ignition occurs. LOWER EXPLOSIVE LIMIT (LEL): The minimal concentration of flammable vapors in air which will sustain ignition. UPPER EXPLOSIVE LIMIT (UEL): The maximum concentration of flammable vapors in air which will sustain ignition. ≈: Approximately symbol.

SECTION 11: CARCINOGENICITY STATUS: NTP: National Toxicology Program. IARC: International Agency for Research on Cancer. REPRODUCTIVE TOXICITY INFORMATION: Mutagen: Substance capable of causing chromosomal damage to cells. Embryotoxin: Substance capable of damaging the developing embryo in an overexposed female. Teratogen: Substance capable of damaging the developing fetus in an overexposed female. Reproductive toxin: Substance capable of adversely affecting male or female reproductive organs or functions. TOXICOLOGY DATA: LDxx or LCxx: The Lethal Dose or Lethal Concentration of a substance which will be fatal to a given percentage (xx) of exposed test animals by the designate route of administration. This value is used to access the toxicity of chemical substances to humans. TDxx or TCxx: The Toxic Dose or Toxic Concentration of a substance which will cause an adverse effect to a given percentage (xx) of exposed test animals by the designate route of administration.

SECTION 12: T_{lm} – Median Tolerance Limit

SECTION 13: RCRA: Resource Conservation and Recovery Act. The regulations promulgated under this act under Act are found in 40 CFR, Sections 260 ff, and define the requirements of hazardous waste generation, transport, treatment, storage, and disposal. EPA RCRA Waste Codes: Defined in 40 CFR Section 261.

SECTION 15: CERCLA: Comprehensive Environmental Response Compensation and Liability Act (a.k.a. "Superfund") and SARA: (Superfund Amendment and Reauthorization Act). The regulations promulgated under this Act are located under 40 CFR 300 ff. and provide "community right-to-know" requirements. DSL/NDL: Canadian Domestic Substances and Non-Domestic Substances Lists.