

# 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) and equivalent state Standards. It has also been developed in accordance with the United Nations Globally Harmonized System of Classification of Chemicals (GHS) and the Canadian Workplace Hazardous Materials Information System (WHMIS). Refer to Section 16 of this document for the definition of terms and abbreviations.

## SECTION 1: IDENTIFICATION

### 1.1 PRODUCT IDENTIFICATION

- **PRODUCT NAME: COSMICHROME – G4-11+ SOLUTION**

### 1.2 PRODUCT USE AND RESTRICTIONS

- **IDENTIFIED USE:** Cosmichrome System; Used with G4 and G5 solutions to form metal.
- **IDENTIFIED USERS:** For sale to, use and storage by personnel trained in handling product safely.

### 1.3 MANUFACTURER INFORMATION

- **MANUFACTURER/SUPPLIER: COSMICHROME**
- **ADDRESS:** 9625 F Ignace; Brossard, Quebec; Canada
- **BUSINESS PHONE:** 450-444-4426 (Monday – Friday, 9:00 am – 5:00 pm)
- **EMERGENCY PHONE:** 1-800-424-9300 (CHEMTREC; 24 hours)  
+1-703-703-527-3887 (CHEMTREC, International and Maritime)

### 1.4 OTHER PRODUCT INFORMATION

- This product is sold and used in relatively small volumes. This SDS has been developed to address safety concerns affecting specific handling situations associated with product use and those involving warehouses and other workplaces where large numbers of product containers are stored or distributed.

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 HAZARD CLASSIFICATION

- Oxidizing Liquid (Category 2); Skin Damage (Category 1C); Serious Eye Damage (Category 1).

### 2.2 LABEL ELEMENTS

- **Hazard Pictograms:**



- **Signal Word:** DANGER.
- **Hazard Statements:** May intensify a fire; oxidizer. Causes severe skin burns and eye damage. Causes serious eye damage.
- **Precautionary Statements**
  - **Prevention:** Keep out of reach of children. Read label before use. Keep away from heat. Keep away and store away from clothing and combustible materials. Take any precautions to avoid mixing this product with combustible materials. Do not breathe mists. Wash exposed skin thoroughly after handling. Wear protective gloves/eye protection/face protection.
  - **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. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.
  - **Storage:** Store locked up.
  - **Disposal:** Dispose of contents/container in accordance with local, city, state and national regulations.

## SECTION 2: HAZARDS IDENTIFICATION (Continued)

### 2.3 OTHER PERTINENT DATA ON HEALTH, PHYSICAL, AND ENVIRONMENTAL HAZARDS

- **Acute Toxicity, Oral (Category 5):** May be harmful if swallowed.
- **Product Aquatic Toxicity:** Acute aquatic toxicity (Category 1). Chronic aquatic toxicity (Category 1). Very toxic to aquatic life with long lasting effects. Avoid release into the environment. Collect spillage. Symbol: To the right.



## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 IDENTIFICATION OF HAZARDOUS SUBSTANCES IN PRODUCT

NAME	CAS NUMBER	GHS HAZARD CLASSIFICATION FOR COMPONENT	% (w/w)
Silver Nitrate	7761-88-8	Oxidizing Solid (Category 2); Corrosive to metals (Category 1); Skin corrosion (Category 1B); Serious eye damage (Category 1); Acute aquatic toxicity (Category 1); Chronic aquatic toxicity (Category 1)	10-30
Ammonium Hydroxide Solution	1336-21-6	Skin irritation (Category 2); Serious eye damage (Category 1); Acute aquatic toxicity (Category 2); Chronic aquatic toxicity (Category 3)	40-60
Other components that do not contribute physical or health hazards at the concentrations present in the product.			

## SECTION 4: FIRST AID MEASURES

### 4.1 DESCRIPTION OF FIRST AID MEASURES

- **BASIC FIRST AID BY EXPOSURE ROUTE:**

#### AREA EXPOSED

#### TREATMENT

#### Eye Contact:

Flush with copious amounts of water for 15 minutes. "Roll" eyes during flush. Seek medical attention promptly.

#### Skin Contact:

Flush area with warm, running water for several minutes. Seek medical attention should skin damage or severe skin irritation occur.

#### Inhalation:

Obtain fresh air. Seek medical attention if symptoms or irritation develop after exposure ends.

#### Ingestion:

If conscious only: Rinse mouth with water. Drink several cups of water. Do not induce vomiting. Contact a Poison Control Center or physician for instructions.

### 4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

- **ACUTE HEALTH EFFECTS:**

#### AREA EXPOSED

#### EFFECTS

#### Eye Contact:

Contact can be irritating and may cause serious eye damage.

#### Skin Contact:

Skin contact is moderately irritating severely irritating and may cause burns, depending on duration of exposure.

#### Inhalation:

Inhalation of mists or sprays may be very irritating to nasal passage; prolonged exposures can cause tissue damage.

#### Ingestion:

May be very irritating to digestive system. Symptoms of gastrointestinal distress (vomiting, diarrhea) may occur. Ingestion can cause damage to tissue of digestive tract and may be fatal in severe cases.

- **CHRONIC HEALTH EFFECTS:** None known.
- **TARGET ORGANS:** Skin, eyes.

### 4.3 INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

- **GENERAL INFORMATION: For all exposures:** In case of accident, or if you feel unwell, seek medical advice immediately. Take this document and a copy of the label to the healthcare professional.
- **RECOMMENDATIONS TO PHYSICIANS:** Treat symptomatically.
- **MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** Medical conditions impacting the target organs can be aggravated upon overexposure.

## 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.

### 5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

- **NFPA FLAMMABILITY CLASSIFICATION:**

NFPA Rating:



**NFPA Hazard Classification:** Oxidizing Liquid – Class I.

- **UNUSUAL HAZARDS IN FIRE SITUATIONS:**

#### POTENTIAL HAZARD

Decomposition:

Incompatibilities:

Explosion Sensitivity to Mechanical Impact:

Explosion Sensitivity to Static Discharge:

#### DESCRIPTION FOR PRODUCT

Generates extremely irritating vapors, silver fumes, and sodium and nitrogen compounds.

See Section 10 (Reactivity and Stability).

Not applicable.

Not applicable.

### 5.3 ADVICE FOR FIREFIGHTERS

- This product is an oxidizer, and can promote the combustion of flammable materials. Self-Contained Breathing Apparatus and full protective equipment for fire response should be worn in any situation. Move containers from fire area if it can be done without risk to personnel. Otherwise, use water spray to keep fire-exposed containers cool.

## 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. Gloves and safety glasses must be worn when cleaning-up spills. Use caution during clean-up; contaminated floors and items may be slippery.
- **RESPONSE TO NON-INCIDENTAL RELEASES:** Generally, releases of this product will be no larger than the loss of one shipment of material. Subsequently, personnel can follow the instructions for incidental releases.

As needed, respond to non-incident chemical releases of this product (such as the simultaneous destruction of several pallets of this product) by clearing the impacted area and contacting appropriate emergency personnel.

In the unlikely event of a multi-container release of the product, and there is no other hazardous condition in the area, the use of an air-purifying respirator with high efficiency particulate filter, face-shield, safety glasses, and double gloves (e.g. nitrile over latex gloves), and body protection is recommended if splashes/sprays/mists can be generated during clean-up or the concentration of vapors is high.

- **RESPONSE PROCEDURES FOR ANY RELEASE:** Absorb spilled liquid with polypads or other suitable absorbent materials. If appropriate, neutralize contaminated area and equipment with water.

### 6.2 ENVIRONMENTAL PRECAUTIONS

- **IN CASE OF SPILL:** Collect spillage promptly. Avoid response actions that can cause a release of a significant amount of the substance into the environment. Avoid accidental dispersal of spilled material into soil, waterways and sewers.

### 6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP

- **SPILL RESPONSE EQUIPMENT:** Polypad or other absorbent material.

### 6.4 REFERENCE TO OTHER SECTIONS

- See Section 8 (Exposure Controls/Personal Protection) for personal protective equipment recommendations.
- See Section 13 (Disposal Recommendations) for information on waste disposal.

## SECTION 7: HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING

- **HYGIENE PRACTICES:** Follow good chemical hygiene practices. Do not smoke, drink, eat, or apply cosmetics in the chemical use area. Avoid inhalation of vapors, mists and sprays. Use in well-ventilated area. Avoid contact with skin or eyes. Remove contaminated clothing promptly. Clean up spilled product immediately.
- **HANDLING PRACTICES:** 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

- **STORAGE PRACTICES:** 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. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid; therefore, empty containers should be handled with care.
- **INCOMPATIBILITIES:** See Section 10 (Stability and Reactivity).

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 CONTROL PARAMETERS

- **AIRBORNE EXPOSURE LIMITS:**

COMPONENT	ACGIH TLV	OSHA PEL	NIOSH REL	OTHER
Silver Nitrate (As Silver, Soluble Salt)	TWA = 0.01 mg/m <sup>3</sup>	TWA = 0.01 mg/m <sup>3</sup>	TWA = 0.01 mg/m <sup>3</sup>	NE
Ammonium Hydroxide (Ammonia)	TWA = 25 ppm STEL = 35 ppm	TWA = 50 ppm	TWA = 25 ppm STEL = 35 ppm	NE

- **BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS:** Not established.

### 8.2 EXPOSURE CONTROLS

- **GENERAL GUIDELINES:** This product is intended for use with the Cosmichrome System. Consult a trained specialist BEFORE handling this product.
- **ENGINEERING CONTROLS:** Ensure area has adequate ventilation to ensure minimal inhalation of mists or vapors can occur.
- **RESPIRATORY PROTECTION:** None needed under normal circumstances of use.
- **HAND PROTECTION:** Neoprene or nitrile gloves are recommended. Ensure gloves are intact prior to use.
- **EYE PROTECTION:** Safety glasses are recommended.
- **BODY PROTECTION:** Body protection suitable to task is recommended (e.g., lab coat).

### 8.3 PERSONAL PROTECTION SYMBOLS



## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

- **APPEARANCE AND DISTINGUISHING CHARACTERISTICS:**

**PROPERTY**

State:  
Color:  
Odor:  
Odor Threshold:  
pH:

**DATA**

Liquid.  
Clear, colorless.  
Ammonia-like  
Between 0.04 ppm and as high as 57 ppm (Ammonia).  
12.6

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (Continued)

### • PHYSICAL DATA:

<u>PROPERTY</u>	<u>DATA</u>
Melting Point/Freezing Point:	0°C (32 °F)
Initial Boiling Point/Boiling Range:	100°C (212 °F).
Flash Point:	Not applicable.
Evaporation Rate (Water = 1):	Approx. 1.0.
Flammability:	Not applicable.
Upper/Lower Explosive Limits	Not applicable.
Vapor Pressure:	The highest known value is 17.2 mm of Hg (@ 20°C) (Water).
Vapor Density	The highest known value is 1 (Air = 1) (Water). Weighted average: 1 (Air = 1)
Relative Density (Density):	1.28 (1.28 g/mL).
Solubility:	Easily soluble in cold water, hot water, methanol. Insoluble in diethyl ether, n-octanol.
Partition Coefficient/n-octanol/water:	Not determined.
Autoignition Temperature:	Not applicable.
Decomposition Temperature:	Not determined.
Viscosity:	Not determined.

### 9.2 OTHER USEFUL INFORMATION ON PROPERTIES

- VOC (less water & exempt): 0.0 g/L.

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 REACTIVITY AND CHEMICAL STABILITY

- The product is not reactive under typical conditions of use or handling.
- Normally stable under standard temperatures and pressures.

### 10.2 POSSIBILITY OF HAZARDOUS REACTIONS

- Product is not self-reactive, water-reactive, or air-reactive; it will not undergo hazardous polymerization.
- This product is an oxidizer: It can help initiate and sustain the combustion of flammable materials.

### 10.3 CONDITIONS TO AVOID

- Avoid contact with incompatible chemicals and adverse storage conditions.

### 10.4 INCOMPATIBLE MATERIALS

- Water-reactive materials. Reducing materials. Flammable liquids and flammable solids.

### 10.5 HAZARDOUS DECOMPOSITION PRODUCTS

- Thermal decomposition of this product generates sodium compounds.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 INFORMATION ON ACUTE TOXICITY

- **PRODUCT TOXICOLOGY DATA:** The following are calculated estimates for the product:
  - Acute Toxicity Estimate (Oral) > 4000 mg/kg
  - Acute Toxicity Estimate (Dermal) > 5000 mg/kg
- **SUBSTANCE TOXICOLOGY DATA:** The following data are available for the hazardous components in this product listed in Section 3 (Composition/Information on Ingredients).

#### SILVER NITRATE

LDLo (Child, Oral) = 22500ug/kg (22.5mg/kg)  
LD50 (Mouse, Intravenous) = 175mg/kg (175mg/kg)  
LD50 (Rabbit, Oral) = 2680mg/kg  
LD50 (Rat, Intraperitoneal) > 181mg/kg (181mg/kg)  
LD50 (Rat, Oral) = 1267mg/kg  
TDLo (Women, Oral) 14mg/kg

- **DEGREE OF IRRITATION:** The product is not anticipated to cause eye irritation or skin irritation. It may be mildly irritating to sensitive individuals or after prolonged exposure.
- **SENSITIZATION:** This product does not contain any compound reported to be either a skin or respiratory sensitizer.

## SECTION 11: TOXICOLOGICAL INFORMATION

- **REVIEW OF ACUTE SYMPTOMS AND EFFECTS BY ROUTE OF EXPOSURE:** See Section 2 (Hazards Information) and Section 4 (First-Aid Measures) for additional details.
  - **Eyes:** Can cause serious eye damage.
  - **Skin:** Can cause severe skin burns.
  - **Inhalation:** Inhalation of mists or sprays can be severely irritating to nasal passages and can cause burns.
  - **Ingestion:** Can be very irritating to the mouth, esophagus, and digestive system; tissue damage may occur.

### 11.2 INFORMATION ON CHRONIC TOXICITY

- **CARCINOGENICITY STATUS:** Not established for any component of this product.
- **REPRODUCTIVE TOXICITY INFORMATION:** The components of this product are not reported to cause reproductive effects under typical circumstances of exposure.
- **MUTAGENIC EFFECTS** The components of this product are not reported to cause mutagenic effects under typical circumstances of exposure.
- **SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:** Not applicable.
- **SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:** Not applicable.
- **ASPIRATION HAZARD:** Not applicable.

### 11.3 OTHER USEFUL TOXICOLOGY INFORMATION

- **TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** None known.
- **ADDITIONAL TOXICOLOGY:** Not applicable.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 ENVIRONMENTAL TOXICITY

- Based on available data, this product is anticipated to be harmful to contaminated terrestrial plants or animals.
- Based on available data, this product is anticipated to be harmful or fatal to contaminated aquatic plants or animals.
- The following data are available for components of this product.

#### AMMONIUM HYDROXIDE

LC50 [Salmo gairdneri (Oncorhynchus mykiss)] - 0.16 - 1.1 mg/l (96 hours/Solution >=50%)

LC50 other aquatic organisms -1 - 10 mg/l (96 hours Solution >=50%)

LC50 (Pimephales promelas) - 0.75 - 3.4 mg/l (96 hours/Solution >=50%)

TLM [Salmo gairdneri (Oncorhynchus mykiss)] 47 ppm (48 hours/ Cool water)

TLM [Salmo gairdneri (Oncorhynchus mykiss)] 2 34 ppm (48 hours/ Warm water)

Threshold limit other aquatic organisms 1 - 10, 96 hours - Solution >=50%

### 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

- This product is not anticipated to bioaccumulate significantly.

### 12.4 MOBILITY IN SOIL

- It is to be expected this product will have some mobility in soil.

### 12.5 OTHER ADVESE ENVIRONMENTAL EFFECTS

- None reported.

## SECTION 13: DISPOSAL CONSIDERATION

### 13.1 WASTE TREATMENT METHODS

- Dispose of in accordance with local, state and national regulations.

### 13.2 DISPOSAL CONSIDERATIONS

- **EPA RCRA WASTE CODE:** D001 (Oxidizer); D002 (Corrosive); D011 (Silver); applicable to wastes consisting only of this product.

### 13.3 DISPOSITION OF EMPTY CONTAINERS

- Empty containers may contain residual liquid; therefore, empty containers should be handled with care.
- Empty containers should be discarded properly.

## SECTION 14: TRANSPORT INFORMATION

### 14.1 HAZARDOUS MATERIALS TRANSPORTATION REGULATIONS

- DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIALS SHIPPING REGULATIONS:**

UN/NA Number	Proper Shipping Name	Packing Group	Hazard Class	Label	North American Emergency Response Guide #	Marine Pollutant Status
UN3098	Oxidizing liquid, corrosive, n.o.s. (Silver Nitrate, Ammonia Solution)	II	5.1 (8)	<b>OXIDIZER CORROSIVE</b>	140	This product is classified as a Marine Pollutant, based on composition and concentration.

- LIMITED QUANTITY EXCEPTIONS [49 CFR 173.152(b)]:** Limited quantities for Class 5.1, Packing Group II materials have inner packaging not over 1.0 L [0.3 gal] (liquids) net capacity each, packed in strong outer packaging.
- CANADIAN TRANSPORTATION INFORMATION:** This product is regulated by Transport Canada as dangerous goods under Canadian transportation standards. Refer to above information.
- IATA DESIGNATION:** This product is regulated as dangerous goods by the International Air Transport Association.

Basic Description	Passenger and Cargo Aircraft				Cargo Aircraft Only	
	Limited Quantity		Packing Instruction	Max. Qty per PKG	Packing Instruction	Max. Qty per PKG
	Packing Instruction	Max. Qty per PKG				
UN3098, Oxidizing liquid, corrosive, n.o.s. (Silver Nitrate, Ammonia Solution)	Y540	0.5L	550	1L	554	5L

- IMO DESIGNATION:** This product is regulated as dangerous goods by the International Maritime Organization.

Basic Description	Limited and Excepted Quantity Provisions		Packing		EmS
	Limited Quantities	Excepted Quantities	Instructions	Provisions	
UN3098, Oxidizing liquid, corrosive, n.o.s. (Silver Nitrate, Ammonia Solution)	1L	E2	P504	--	F-A,S-Q

### 14.2 ENVIRONMENTAL HAZARDS

- Based on the volume of product shipped, product is typically excepted from regulations related to Marine Pollutants because of the limited hazards to the environment.

### 14.3 SPECIAL PRECAUTIONS FOR TRANSPORTERS

- None established.

### 14.4 TRANSPORT IN BULK

- Not applicable.

## SECTION 15: REGULATORY INFORMATION

### 15.1 OTHER IMPORTANT U.S. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

- U.S. SARA HAZARD CATEGORIES (SECTION 311/312, 40 CFR 370-21):** ACUTE: Yes; CHRONIC: No; FIRE: Yes (Oxidizer); REACTIVE: No; SUDDEN RELEASE: No.
- U.S. CERCLA REPORTABLE QUANTITY (RQ):** Silver Nitrate = 1 lb.
- U.S. SARA 313:** Ammonium Hydroxide and Silver Nitrate (as Silver Compound) are subject to the reporting requirements of SARA Title III Section 313.
- U.S. TSCA INVENTORY STATUS:** All components of this product are listed on the TSCA Inventory.



## SECTION 15: REGULATORY INFORMATION

### 15.2 OTHER IMPORTANT U.S. STATE REGULATIONS FOR COMPONENTS

- **CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) STATUS:** Not applicable.
- **STATE HAZARDOUS SUBSTANCES LIST:**

COMPONENT	NJ Right to Know	PA Right to Know	MA Right to Know	OTHER
Silver Nitrate	LISTED	LISTED	LISTED	ND
Ammonium Hydroxide	LISTED	LISTED	LISTED	ND

### 15.3 OTHER IMPORTANT CANADIAN SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

- **ADDITIONAL WHMIS INFORMATION:** The following information is offered during the transition period for implementation of new regulations.
  - **WHMIS 2015:** See Section 2.
  - **WHMIS 1988:** Not established.
  - This SDS contains all the information required by the HPR.
- **CANADIAN DSL/NDSL INVENTORY STATUS:** Components of this product are on the DSL/NDSL Inventory.
- **CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priority Substances Lists.

## SECTION 16: OTHER INFORMATION

### 16.1 INDICATION OF CHANGE

- **DATE OF REVISION:** February 5, 2016
- **SUPERCEDES:** May 30, 2014
- **CHANGE INDICATED:** Update of OSHA Hazard Communication Standard (29 CFR 1910.1200).

### 16.2 HAZARDOUS MATERIALS SYSTEM RATING

Health	3	
Flammability	0	
Physical Hazard	0	
Protective Equipment	C	<i>(Personal Protective Equipment Rating: Occupational Use situations: C – Safety glasses/gloves/body protection. See section 8 for details.)</i>

### 16.3 DEFINITIONS

#### SECTION EXPLANATION OF TEMS/ABBREVIATIONS

ALL	<b>OSHA:</b> U.S. Federal Occupational Safety and Health Administration. <b>WHMIS:</b> Canadian Workplace Hazardous Materials Standard. <b>GHS:</b> Globally Harmonized System of Classification of Chemical Substances. <b>HCS:</b> Hazard Communication Standard (U.S.). <b>HPR:</b> Hazardous Products Regulations (Canada).
3	<b>CAS Number:</b> Chemical Abstract Service Number, used by the American chemical Society to uniquely identify a chemical.
5	<b>NFPA:</b> National Fire Protection Association. <b>NFPA FLAMMABILITY CLASSIFICATION:</b> The NFPA uses the flash point (F.I.P.) and boiling point (BP) to classify flammable or combustible liquids. Class IA: F.I.P. below 73°F and BP below 100°F. Class IB: F.I.P. below 73°F and BP at or above 100°F. Class IC: :F.I.P. at or above 73°F and BP at or above 100°F. Class II: : F.I.P. at or above 100°F and below 140°F. Class IIIA: F.I.P. at or above 140°F and below 200°F. Class IIIB: F.I.P. at or above 200°F. <b>NFPA HAZARDOUS MATERIALS RATING:</b> This is a rating system used to summarize physical and health hazards to firefighters Blue = Health hazard; Red = Fire Hazard; Yellow = Reactivity Hazard. 0 = No Significant Hazard. 1 = Slight Hazard. 2 = Moderate Hazard. 3 = Severe Hazard. 4 = Extreme Hazard.
8	<b>pH:</b> 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. <b>FLASH POINT:</b> Temperature at which a liquid generates enough flammable vapors so that ignition may occur. <b>AUTOIGNITION TEMPERATURE:</b> Temperature at which spontaneous ignition occurs.
9	<b>pH:</b> 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. <b>FLASH POINT:</b> Temperature at which a liquid generates enough flammable vapors so that ignition may occur. <b>AUTOIGNITION TEMPERATURE:</b> Temperature at which spontaneous ignition occurs. <b>LOWER EXPLOSIVE LIMIT (LEL):</b> The minimal concentration of flammable vapors in air which will sustain ignition. <b>UPPER EXPLOSIVE LIMIT (UEL):</b> The maximum concentration of flammable vapors in air which will sustain ignition. ≈: Approximately symbol. <b>VOC:</b> Volatile Organic Compound.



## SECTION 16: OTHER INFORMATION (Continued)

### SECTION    EXPLANATION OF TEMS/ABBREVIATIONS

- 11    CARCINOGENICITY STATUS: NTP: National Toxicology Program. IARC: International Agency for Research on Cancer. REPRODUCTIVE TOXICITY INFORMATION: Germ Cell Mutagenicity: Substance capable of causing chromosomal damage to cells. Embryotoxicity: 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: LDxxor 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. TDxxor 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.
- 12    EC50: Effect Concentration (on 50% of study group); BOD: Biological Oxygen Demand. TLM: Median Threshold Limit.
- 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.
- 15    NJ: New Jersey. PA: Pennsylvania. MA: Massachusetts. ND: Not determined. CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act. SARA: Superfund Amendments and Reauthorization Act.
- 16    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.

### 16.4    DISCLAIMER



*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.*