

# SAFETY DATA SHEET



This document has been prepared to be compliant with the requirements for Safety Data Sheets implemented under U.S. Federal Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200, as updated in 2012 and equivalent State Standards), guidelines from the United Nations Globally Harmonized System of Classification of Chemicals (GHS), the Canadian Workplace Hazardous Materials Information System (WHMIS) and Hazardous Products Regulations (HPR), and both the Great Britain and European Union regulation on the Classification, Labelling and Packaging of Substances and Mixtures (EC No. 1272/2008, EU 2020/878, EU Exit Regulations 2019/720).

## SECTION 1: IDENTIFICATION

### 1.1 PRODUCT IDENTIFICATION

- **PRODUCT NAME:** 4X Flow Buffer
- **PRODUCT CODE:** 20431

### 1.2 PRODUCT USE AND RESTRICTIONS

- **IDENTIFIED USE:** Laboratory research and development.
- **USES ADVISED AGAINST:** Non-laboratory procedures.
- **IDENTIFIED USERS:** For sale to, use and storage by personnel trained in handling product safely.

### 1.3 MANUFACTURER INFORMATION

- **MANUFACTURER/SUPPLIER:** **Bionano Genomics**
- **ADDRESS:** 9650 Towne Centre Dr.; San Diego, CA 92121
- **BUSINESS PHONE:** +1-858-888-7600 (9:00 am to 5:00 pm, Pacific Standard Time)
- **EMERGENCY PHONE:** +1-858-888-7600 (9:00 am to 5:00 pm, Pacific Standard Time)

## SECTION 2: HAZARD IDENTIFICATION

### 2.1 HAZARD CLASSIFICATION (US OSHA, EU CLP, and UK Requirements)

- Reproductive Toxicity (Category 1B)

### 2.2 LABEL ELEMENTS (US OSHA and EU CLP)

- **Hazard Pictograms:**



- **Signal Word:** Danger.
- **Hazard Statements:** H360FD - May damage fertility. May damage the unborn child
- **Precautionary Statements:** P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood. P308 + P313 - IF exposed or concerned: Get medical advice/attention. P280 - Wear protective gloves/protective clothing/eye protection/face protection. . P501 - Dispose of contents/container to approved waste facility.

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

- Not applicable.

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 IDENTIFICATION OF HAZARDOUS SUBSTANCES IN PRODUCT

NAME	CAS NUMBER	GHS HAZARD CLASSIFICATION FOR COMPONENT	%
Boric Acid	10043-35-3	Reproductive Toxicity (Category 1B)	≤2% w/v
Water and other components that do not contribute either health or physical hazards at the concentrations present.			Balance%

## SECTION 4: FIRST AID MEASURES

### 4.1 DESCRIPTION OF FIRST AID MEASURES

#### • **BASIC FIRST AID BY EXPOSURE ROUTE:**

<u>AREA EXPOSED</u>	<u>TREATMENT</u>
---------------------	------------------

<b>Eye Contact:</b>	Flush with copious amounts of water for 15 minutes. "Roll" eyes during flush. Seek medical attention should any irritation develop.
---------------------	---

<b>Skin Contact:</b>	Flush area with warm, running water for several minutes. Seek medical attention should any irritation develop.
----------------------	--

<b>Inhalation:</b>	Obtain fresh air. Seek medical attention if irritation develops after exposure ends.
--------------------	--

<b>Ingestion:</b>	If conscious only: Rinse mouth with 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:**

<u>AREA EXPOSED</u>	<u>EFFECTS</u>
---------------------	----------------

<b>Eye Contact:</b>	May cause eye irritation upon prolonged exposure.
---------------------	---

<b>Skin Contact:</b>	May cause skin irritation upon prolonged exposure.
----------------------	--

<b>Inhalation:</b>	Inhalation of mists or sprays may be irritating to nasal passages and other tissues of the respiratory tract.
--------------------	---

<b>Ingestion:</b>	May be mildly irritating to digestive system and may cause discomfort, nausea, and other symptoms.
-------------------	--

- **CHRONIC HEALTH EFFECTS:** Boric acid, a component of this product, has been shown to impair fertility in animal testing.

- **TARGET ORGANS:** Reproductive system.

### 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:** None known.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1 EXTINGUISHING MEDIA

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

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

#### • **NFPA FLAMMABILITY CLASSIFICATION:**

NFPA Rating:



NFPA Hazard Classification: Not flammable.

### 5.3 UNUSUAL HAZARDS IN FIRE SITUATIONS

<u>POTENTIAL HAZARD</u>	<u>DESCRIPTION FOR PRODUCT</u>
-------------------------	--------------------------------

<b>Decomposition:</b>	Generates irritating vapors, carbon monoxide, carbon dioxide, and boron compounds
-----------------------	---

<b>Incompatibilities:</b>	See Section 10 (Reactivity and Stability).
---------------------------	--

<b>Explosion Sensitivity to Mechanical Impact:</b>	Not applicable.
--	-----------------

<b>Explosion Sensitivity to Static Discharge:</b>	Not applicable.
---	-----------------

## SECTION 5: FIREFIGHTING MEASURES (Continued)

### 5.4 ADVICE FOR FIREFIGHTERS

- 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 air filter, face-shield, safety glasses, and double gloves (e.g. nitrile over latex gloves), and body protection is recommended if mists/sprays/aerosols can be generated during clean-up or the concentration of vapors is high.
- **RESPONSE PROCEDURES FOR ANY RELEASE:** Use damp sponge or polypad to carefully cleanse contaminated area or items. If appropriate, further clean contaminated area and equipment with soap and water solution, followed by a water rinse.

### 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 sponge. Appropriate waste container.

### 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 mists, sprays, or aerosols. 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:** Store product at -20°C (4.0°F) in original container. Ensure all containers are correctly labeled. Store containers away from direct sunlight, and sources of intense heat. 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 material; therefore, empty containers should be handled with care.
- **INCOMPATIBILITIES:** See Section 10 (Stability and Reactivity).

### 7.3 SPECIFIC END USES

- This product is for use in research and development laboratories by trained laboratory personnel.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 CONTROL PARAMETERS

- **AIRBORNE EXPOSURE LIMITS:**

- U.S. LIMITS

BORIC ACID (as Borate Compound)

ACGIH TLV-TWA = 2mg/m<sup>3</sup> TWA (Inhalable Fraction)

ACGIH TLV-STEL = 6 mg/m<sup>3</sup> (Inhalable Fraction)

- EUROPEAN NATIONAL OCCUPATIONAL EXPOSURE LIMITS

BORIC ACID (as Borate Compound)			
Austria: Not established.	Finland: TWA = 0.5 mg/m <sup>3</sup>	Latvia: TWA = 10 mg/m <sup>3</sup>	Romania: Not established.
Belgium: TWA = 2 mg/m <sup>3</sup> ; STEL 6 mg/m <sup>3</sup>	France: Not established.	Lithuania: TWA = 10 mg/m <sup>3</sup>	Slovakia: Not established.
Bulgaria: TWA = 5 mg/m <sup>3</sup>	Germany: TRGS 9000 OEL = 1.5 mg/m <sup>3</sup> (Respirable Fraction), 0.5 mg/m <sup>3</sup> (Inhalable Fraction)	Luxemburg: Not established.	Slovenia: Not established.
Croatia: Not established.	Gibraltar: Not established.	Malta: Not established.	Spain: TWA = 2 mg/m <sup>3</sup> ; STEL 6 mg/m <sup>3</sup> ,
Republic of Cyprus: Not established.	Greece: Not established.	Netherlands: TWA = 0.1 Not established.	Sweden: Not established.
Czech Republic: Not established.	Hungary: Not established.	Norway: TWA = 0.1 mg/m <sup>3</sup>	Switzerland: TWA = 10 mg/m <sup>3</sup>
Denmark: Not established.	Ireland: Not established.	Poland: Not established.	United Kingdom: Not established.
Estonia: Not established.	Italy: TWA = 2 mg/m <sup>3</sup> ; STEL 6 mg/m <sup>3</sup> .	Portugal: TWA = 2 mg/m <sup>3</sup> ; STEL 6 mg/m <sup>3</sup>	

- **BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS:** None established.

### 8.2 EXPOSURE CONTROLS

- **GENERAL GUIDELINES:** This product is intended for use within research and development laboratories.
- **ENGINEERING CONTROLS:** Ensure area has adequate ventilation to ensure minimal inhalation of mists or sprays occurs. Eye wash stations and safety showers should be readily available.
- **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., laboratory coat).
- **OTHER PROTECTIVE MEASURES:** Wash hands during breaks and at the end of handling the material. Immediately remove any contaminated clothing.

### 8.3 ENVIRONMENTAL EXPOSURE CONTROLS

- Minimize the generation of mists, sprays, or aerosols while using this product. Avoid release into the environment.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

- **APPEARANCE AND DISTINGUISHING CHARACTERISTICS:**

<u>PROPERTY</u>	<u>DATA</u>
State:	Liquid
Color:	Clear, colorless
Odor:	Odorless
Odor Threshold:	Not determined
pH:	Not determined

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

### 9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

- **PHYSICAL DATA:**

<u>PROPERTY</u>	<u>DATA</u>
Melting Point/Freezing Point:	Approximately 0°C (32°F)
Initial Boiling Point/Boiling Range:	Approximately 100°C (212°F)
Flash Point:	Not applicable
Evaporation Rate (Water = 1):	Approximately 1.0
Flammability:	Not applicable
Vapor Pressure:	Not determined
Vapor Density	Not determined
Relative Density (Density):	> 1.0 (>8.34 lb./gal.)
Solubility:	Totally soluble in water
Partition Coefficient/n-octanol/water:	Not determined
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Not determined
Viscosity:	Not determined

### 9.2 INFORMATION RELEVANT TO PHYSICAL HAZARD CLASSIFICATION

- **Information regarding Physical Hazard Classes** This product is not classified under any physical hazard class.
- **Other Safety Characteristics** Not applicable

## 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.

### 10.3 CONDITIONS TO AVOID

- Avoid contact with incompatible chemicals and adverse storage conditions.

### 10.4 INCOMPATIBLE MATERIALS

- Strong oxidizers.

### 10.5 HAZARDOUS DECOMPOSITION PRODUCTS

- Products of thermal decomposition include oxides of carbon and boron.

## 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) > 2000 mg/kg
  - Acute Toxicity Estimate (Dermal) > 2000 mg/kg
  - Acute Toxicity Estimate (Inhalation) > 30 mg/L
- **COMPONENT TOXICITY DATA:**
  - BORIC ACID: LD50 (oral, rat) = 2.660 mg/kg
- **DEGREE OF IRRITATION:** This product is not anticipated to cause skin or eye irritation.
- **SENSITIZATION:** This product does not contain any compound reported to be either a skin or respiratory sensitizer.

## SECTION 11: TOXICOLOGICAL INFORMATION (Continued)

### 11.1 INFORMATION ON ACUTE TOXICITY

- **REVIEW OF ACUTE SYMPTOMS AND EFFECTS BY ROUTE OF EXPOSURE:** See Section 2 (Hazard Information) and Section 4 (First-Aid Measures) for additional details.
  - **Eyes:** May cause eye irritation upon prolonged exposure.
  - **Skin:** May cause skin irritation upon prolonged exposure.
  - **Inhalation:** Inhalation of mists or sprays may be irritating to nasal passages and other tissues of the respiratory tract.
  - **Ingestion:** May be mildly irritating to digestive system and may cause discomfort, nausea, and other symptoms.

### 11.2 INFORMATION ON CHRONIC TOXICITY

- **CARCINOGENICITY STATUS:** This product is not listed as a carcinogen by NTP, IARC, or OSHA.
- **REPRODUCTIVE TOXICITY INFORMATION:** The following information is available for Boric Acid, a component of this product:
  - BORIC ACID. Developmental effects were observed in mice, rats, and rabbits after oral administration of Boron Acid. However, these effects were considered secondary to maternal toxicity (e.g., adverse liver and kidney effects). Boric Acid was found to induce testicular atrophy and effects on spermatogenesis in rats and mice in various studies. Effects occurred at dose-levels (27 mg/kg) without general toxicity. Boric Acid has selectively damaged the testes, sperm production and fertility in rats and dogs after ingestion of relatively large doses.
- **MUTAGENIC EFFECTS** This product is not anticipated to cause mutagenic effects under typical circumstances of occupational 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

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

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 ENVIRONMENTAL TOXICITY

- Based on available data, this product is not anticipated to be harmful to contaminated terrestrial plants or animals.
- Based on available data, this product is not anticipated to be harmful to contaminated aquatic plants or animals.
- The following aquatic toxicity data is available for the components of this product:

#### BORIC ACID

EC<sub>50</sub> (*Daphnia magna*); 48 hours, 133 mg/L

LC<sub>50</sub> Fish (*Lepomis machochris-Bluegill*); 96 hours/ > 1021 mg/l

### 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

- Based on its total solubility in water, it is expected that this product will have significant mobility in soil.

### 12.5 RESULTS OF PBT AND vPvB ASSESSMENT

- Not classified as PBT or vPvB.

### 12.6 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:** Not applicable to wastes consisting only of this product.
- **SEWAGE DISPOSAL:** Because it is a laboratory chemical, waste should not be disposed of by release to sewers.

### 13.3 DISPOSITION OF EMPTY CONTAINERS

- Empty containers may contain residual material; 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
NOT REGULATED AS A DANGEROUS GOOD FOR TRANSPORTATION						

- **CANADIAN TRANSPORTATION INFORMATION:** This product is not regulated by Transport Canada as a dangerous good under Canadian transportation standards.
- **EUROPEAN TRANSPORT CLASSIFICATION MY ROAD (ADR)/RAAL (RID):** Product is not regulated as a dangerous good.
- **IATA DESIGNATION:** Product is not regulated as a dangerous good by the International Air Transport Association.
- **IMO DESIGNATION:** Product is not regulated as a dangerous good by the International Maritime Organization.

### 14.2 ENVIRONMENTAL HAZARDS

- None known.

### 14.3 SPECIAL PRECAUTIONS FOR TRANSPORTERS

- None established.

### 14.4 TRANSPORT IN BULK

- **ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE:** Not applicable.

## SECTION 15: REGULATORY INFORMATION

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

- **U.S. SARA THRESHOLD PLANNING QUANTITY:** Not applicable to the product, based on composition and volume.
- **U.S. SARA HAZARD CATEGORIES (SECTION 311/312, 40 CFR 370-21):** Reproductive Toxicity.
- **U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable to the product, based on composition and volume.
- **U.S. SARA TITLE 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
- **US CLEAN AIR ACT (SECTION 112r):** Not applicable.

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

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

## SECTION 15: REGULATORY INFORMATION (Continued)

### 15.3 CANADIAN AND EU 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.
  - This SDS contains all the information required by the Hazardous Products Regulations (SOR/2015-17).
- **CANADIAN DSL/NDL INVENTORY STATUS:** All components of this product are listed or exempted.
- **CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priority Substances Lists.
- **E.U. REACH:** Contains no REACH substances with Annex XVII restrictions. Contains no substance on the REACH candidate list. Contains no REACH Annex XIV substances.
- **GERMAN WATER HAZARD CLASSIFICATION: WGK** - Low hazard to waters.
- **FRANCE: TABLEAUX DE MALADIES PROFESSIONNELLES (Table of Occupational Illnesses):** No listing.
- **THE NETHERLANDS: LIST OF CARCINOGENS, MUTAGENS, AND REPRODUCTIVE TOXINS:** Boron Compound is on the list of substances classified as toxic for reproduction.
- **DENMARK: LIST OF COMPOUNDS AND PROCESSES CONSIDERED TO BE CARCINOGENIC:** No listing.

### 15.4 CHEMICAL SAFETY ASSESSMENT

- **ASSESSMENT INFORMATION:** No chemical safety assessment has been carried out.

## SECTION 16: OTHER INFORMATION

### 16.1 INDICATION OF CHANGE

- **DATE OF PREPARATION:** November 30, 2022
- **SUPERCEDES:** Not applicable.
- **CHANGE INDICATED:** Documentation prepared to include European Union Safety Data Sheet requirements.

### 16.2 HAZARDOUS MATERIALS SYSTEM RATING

Health	1*	* Reproductive Toxicity
Flammability	0	
Physical Hazard	0	<i>(Personal Protective Equipment Rating: Occupational Use situations: B – Safety glasses/gloves; C – Add body protection appropriate to task. See section 8 for details.)</i>
Protective Equipment	B/C	

### 16.3 DEFINITIONS

#### SECTION EXPLANATION OF TERMS/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). <b>EU:</b> European Union. <b>CLP:</b> Union Classification, Labelling and Packaging of Substances and Mixtures
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>ACGIH:</b> American Conference of Government Industrial Hygienists; <b>TWA:</b> Time-Weighted Average (over an 8-hour workday); <b>STEL:</b> Short-Term Exposure Limit (15-minute average, no more than 4-times daily and each exposure separated by one-hour minimally); <b>C:</b> Ceiling Limit (concentration not to be exceeded in a work environment). <b>PEL:</b> Permissible Exposure Limit. <b>NIOSH:</b> National Institute of Occupational Safety and Health; <b>REL:</b> Recommended Exposure Limit; <b>IDLH:</b> Immediately Dangerous to Life and Health Concentrations. <i>Note:</i> 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. <b>ppm:</b> Parts per Million. <b>mg/m<sup>3</sup>:</b> Milligrams per cubic meter. <b>BEI:</b> Biological Exposure Limit. <b>MAK:</b> Maximum Concentration Values in the Workplace.



## SECTION 16: OTHER INFORMATION (Continued)

<u>SECTION</u>	<u>EXPLANATION OF TEMS/ABBREVIATIONS</u>
9	<u>pH</u> : 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. <u>FLASH POINT</u> : Temperature at which a liquid generates enough flammable vapors so that ignition may occur. <u>AUTOIGNITION TEMPERATURE</u> : Temperature at which spontaneous ignition occurs. <u>LOWER EXPLOSIVE LIMIT (LEL)</u> : The minimal concentration of flammable vapors in air which will sustain ignition. <u>UPPER EXPLOSIVE LIMIT (UEL)</u> : The maximum concentration of flammable vapors in air which will sustain ignition.
11	<u>CARCINOGENICITY STATUS</u> : NTP: National Toxicology Program. IARC: International Agency for Research on Cancer. <u>TOXICOLOGY DATA</u> : 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 assess 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.
12	<u>EC50</u> : Effect Concentration. <u>PBT or vPvB</u> : Persistent/ Bioaccumulative /Toxic; Very Persistent/ Very Bioaccumulative
13	<u>RCRA</u> : 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. <u>EPA RCRA Waste Codes</u> : Defined in 40 CFR Section 261.
15	<u>CERCLA</u> : Comprehensive Environmental Response, Compensation, and Liability Act. <u>SARA</u> : Superfund Amendments and Reauthorization Act. <u>TSCA</u> : Toxic Substances Control Act. <u>DSL/NDSL</u> : Domestic Substances List/Non-Domestic Substances List. <u>REACH</u> : European Union regulation concerning the Registration, Evaluation, Authorization, and restriction of CHemicals.
16	<u>HAZARDOUS MATERIALS IDENTIFICATION SYSTEM RATING</u> : 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.