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MARYLAND LAB PERMIT #080

Material Safety Data Sheets

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: *Prefer*

Catalog number: 402, 414, 415, 419, 424, 426, 429

General use: Fixative in histology and surgical pathology.

Product description: Aqueous solution of glyoxal, buffer and alcohol.

Manufacturer	**Emergency contact information**			
Anatech Ltd.	Health:	Anatech Ltd.	800-262-8324	8 am - 5 pm ET, M-F
1020 Harts Lake Road	Transportation:	CHEMTREC	800-424-9300	24 hours
Battle Creek, MI 49015				
USA				

2. COMPOSITION AND INFORMATION ON INGREDIENTS

(Note: Percentage composition is withheld as a trade secret.)

Component	**CAS #**	**Exposure limits**
Glyoxal	107-22-2	0.1 mg/m^3 (ACGIH 8 hr TWA) for aerosol
Ethanol	64-17-5	1000 ppm (OSHA, ACGIH 8 hr TWA)
Buffer	Proprietary	Not established; generally considered not hazardous.

3. HAZARDS IDENTIFICATION

Emergency Overview

Clear liquid; colorless to very slightly pale yellow; mild, acidic/alcohol odor.

Irritant to eyes and skin. Prolonged or extensive unprotected skin contact may cause allergic skin responses in sensitive individuals. Not likely to pose an inhalation threat under normal conditions of use. Ingestion is likely to cause adverse effects on gastrointestinal tract.

Potential health effects

(Human health effects only; animal effects in Section 11: Toxicological Information.)

Primary route(s) of exposure: Eyes and skin.

Inhalation: Inhalation of vapors during normal conditions of use are not likely to present a health hazard because glyoxal exhibits almost no vapor pressure. No respiratory irritation has been reported due to inhalation of concentrated glyoxal in an industrial setting.

Eye: Contact of liquid with eyes may cause irritation.

3. HAZARDS IDENTIFICATION (continued)

Skin: Contact of liquid with skin may cause irritation.

Ingestion: Ingestion of liquid is likely to produce adverse effects on the gastrointestinal system.

Chronic effects: No chronic effects reported. Glyoxal is not considered to be a carcinogen or potential carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA (USA).

Signs and symptoms: Affected skin will appear dry, tough and perhaps cracked. Affected corneas may appear cloudy; eyes may water and become reddened. Effects on the gastrointestinal tract are unknown, but presumably may include nausea and/or vomiting. Effects on the respiratory system are unknown, but presumably may include coughing and difficulty in breathing. There are no pre-existing medical conditions known to be aggravated by exposure to this solution.

4. FIRST AID MEASURES

Inhalation: Remove victim to fresh air if coughing or difficulty in breathing is experienced. Consult a physician if symptoms persist or worsen. Administer oxygen or artificial respiration as needed.

Eye: Flush eyes for at least 15 minutes in an eyewash station. If symptoms persist after washing, consult a physician.

Skin: Remove contaminated clothing, including footwear; wash before reuse or discard. For minor exposure, wash affected area with water and mild soap, rinsing thoroughly; apply a good quality skin lotion. In cases of prolonged, repeated or extensive exposure, rinse affected area or entire body for at least 15 minutes. For severe conditions, consult a physician.

Ingestion: Call a poison control center immediately. If victim is conscious, have him/her drink several glasses of water to dilute the solution. Induce vomiting only upon the advice of a physician or poison control authority.

Note to physician: *Prefer* is a histological fixative. If ingested, it will fix lining cells of the gastrointestinal tract. The solution loses its efficacy as a fixative if the pH is raised to neutrality. In cases of accidental ingestion, neutralization could reduce the risk of damage to the lining; furthermore, neutralization might reduce the risk of damage to the respiratory tract if aspiration occurs during vomiting.

5. FIRE FIGHTING MEASURES

Flammable properties

Flash point: 102°F (38.9°C), closed-cup.

Flammable limit: Not determined.

Autoignition temperature: Not determined.

Flammability classification: Combustible liquid (OSHA).

Flame propagation: None.

Hazardous products of combustion: Carbon monoxide and carbon dioxide.

5. FIRE FIGHTING MEASURES (continued)

Extinguishing media: ABC rated portable fire extinguishers should be used. Professional fire fighters may use water spray, dry chemical or carbon dioxide.

Fire fighting instructions: Sealed chemical suits and self contained breathing apparatus are necessary for fighting fires involving substantial volumes of this product.

6. ACCIDENTAL RELEASE MEASURES

The size of a spill is defined in part by the local situation, especially regarding ventilation. At room temperature in a well ventilated room, a few hundred milliliters might be considered a small spill. Vapors are generated during a spill and may exceed OSHA's Permissible Exposure Limits. Wear protective gloves, rubber boots, impermeable aprons and full-face respirators. Use a damp sponge or mop to remove spilled liquid. Wash contaminated area with water. Spills left to dry will become sticky. Liquid waste may be discarded down the drain with approval by wastewater authorities, or may be removed by a licensed waste hauler.

With large spills, evacuate the area and have an emergency response team perform the cleanup. Have a licensed waste hauler remove contaminated solids and recovered liquid.

- Comply with all applicable governmental regulations on spill reporting and on the handling and disposal of hazardous waste.

7. HANDLING AND STORAGE

Handling: Wear a plastic or rubber apron, protective gloves and splash-proof goggles. Avoid all contact with skin and eyes. Do not continue to wear contaminated clothing after a spill.

Storage: Store at room temperature.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering controls: Good general room ventilation is essential. Product should be used with local ventilation (fume hood).

Personal protective equipment

Respiratory protection: A NIOSH-approved respirator suitable for organic vapors must be used if vapor levels exceed the exposure limits.

Skin protection: Anatech Ltd. recommends nitrile gloves. Do not use latex surgical gloves for protection against any hazardous liquid. An eyewash station and safety shower must be nearby, preferably in the same room, no more than 10 seconds away.

Eye protection: Use splash-proof goggles. Do not use safety glasses. If a face shield is worn as protection against biohazards, splash-proof goggles also must be used. An eyewash station and safety shower must be nearby, preferably in the same room, no more than 10 seconds away.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear; colorless to very slightly pale yellow liquid.

Odor: Mild, acidic/alcohol odor.

Physical state: Liquid.

pH: 3.75 - 4.25.

Vapor pressure: Not determined. The vapor pressure due to glyoxal is negligible.

Vapor density: Not determined.

Boiling point: 185°F - 220°F (85°C - 104°C).

Freezing point: Not determined.

Solubility in water: Complete.

Specific gravity: 1.003 at 20°C.

10. STABILITY AND REACTIVITY

Chemical stability: Stable.

Conditions to avoid: None.

Incompatibility with other materials: Strong oxidants (will convert glyoxal to formic acid).

Hazardous decomposition products: None.

Hazardous polymerization: None.

11. TOXICOLOGICAL INFORMATION

Acute eye effects: 20 mg of concentrated glyoxal administered into rabbit eyes in the standard Draize test produced severe irritation.

Acute skin effects: Contact dermatitis and eczema have been reported in hospital workers who used strong antiseptics containing glyoxal. Symptoms abated when use of these products were discontinued. Workers handling a glyoxal-based resin reported eczema on their hands; fiberglass in the resin could not be ruled out as a contributing factor.

Acute and subchronic oral effects: OSHA considers chemicals to be toxic if their LD_{50} is at or below 500 mg/kg. LD_{50} is the dose killing 50% of the test animals in a given time (usually 4 hours). Glyoxal is not considered to be toxic by OSHA. Using concentrated glyoxal, the LD_{50} was 760 mg/kg in guinea pigs, and ranged from 1.1 - 4.3 g/kg in rats. In another study the LD_{50} in rats was 3.08 ml/kg. A 90 day feeding study with rats and dogs found no effects on food consumption, mortality, and gross or microscopic pathology. The no-observed-effect level for glyoxal in the diet of these animals was 0.12 g/kg/day.

11. TOXICOLOGICAL INFORMATION (continued)

Acute and subchronic inhalation effects: Inhalation of air saturated with glyoxal vapor for 8 hours was not lethal to rats. Inhalation of aerosols containing glyoxal is harmful but not likely to be encountered in laboratory use. ACGIH has established a TLV-TWA of 0.1 mg/m^3 based upon unpublished findings of squamous cell metaplasia in the larynx of rats exposed to 2 mg/m3 to 10 mg/m^3 for 6 hours/day, 5 days/week for 29 days.

Other chronic effects/carcinogenicity: There is no evidence of cancer or target organ effects deriving from workplace exposures or from reasonably relevant toxicological studies except for contact skin rashes.

Teratology: None known.

Reproductive effects: None known.

Mutagenicity: Mutagen tests involving microorganisms and mammalian tissue cultures have dubious relevance to workplace exposures. Glyoxal was found to be mutagenic with and without metabolic activation in the Ames bacterial point mutation assay, was genotoxic in the CHO/SCE and primary hepatocyte DNA repair tests. Two whole-animal genotoxic studies have been conducted: the mouse micronucleus test showed no activity at 400 mg/kg; the Drosophila sex-linked recessive lethal assay was also negative.

12. ECOLOGICAL INFORMATION

Ecotoxicity: *Prefer* exhibits a low order of environmental toxicity and a low potential to bioaccumulate. There is no inhibition of bacteria in wastewater effluent when glyoxal is properly introduced into an acclimated biological treatment facility.

The following data are from studies using concentrated glyoxal:

Cyprinodont fish: 48 hr LC_{50} = 2800 ppm; zero mortality at 1000 ppm

Golden orfe: 96 hr LC_{50} = 460 - 680 mg/l

Daphnia magna: 48 hr EC_{50} = 404 mg/l

Green algae: 72 hr EC_{50} > 100 mg/l

Bacteria: 16 hr EC_{50} = 102 mg/l

DOC reduction: 28 day: 90 - 100% (easily eliminated from water)

Modified OECD Confirmatory Test: Elimination > 70% (good potential for elimination)

Chemical Oxygen Demand (COD) = 350 mg/g

Biological Oxygen Demand (BOD), 5 day = 175 mg/g

Environmental fate: All ingredients in *Prefer* consist solely of carbon, hydrogen and oxygen. *Prefer* is readily biodegradable to carbon dioxide and water.

13. DISPOSAL CONSIDERATIONS

Glyoxal itself is not an EPA-listed hazardous waste. *Prefer* is ignitable.

Drain disposal is the recommended method of disposal, based on ecotoxicity and biodegradation information given in Section 12, provided approval is granted by local wastewater treatment authorities.

13. DISPOSAL CONSIDERATIONS (continued)

Anatech Ltd. suggests that waste *Prefer* be introduced into the sanitary sewer system slowly, at the rate of 1-5 gallons per hour. To do this, trickle the waste into the sink from a 5 gallon carboy or drum equipped with a spigot which is barely turned on. The normal flow of wastewater through the generator's facility will dilute the waste. Under this regimen, the waste solution will have no effect on biological or chemical processes at wastewater treatment plants. Neutralization of the pH should not be necessary in most sewer districts, but in the event that it is, use magnesium oxide or magnesium hydroxide (neither one will make the solution too alkaline). Alternatively, dibasic sodium phosphate may be used in areas where phosphates are not restricted in wastewater. Sodium carbonate and sodium bicarbonate are also effective but may cause foaming. Sodium hydroxide is more hazardous to work with and may make the waste too alkaline.

- As an alternative to drain disposal, use a licensed hazardous waste hauler.

- This product is not recyclable.

- Canadian disposal regulations generally parallel those in the United States.

- Regardless of the method chosen for disposal, be sure to follow federal, state (provincial) and local regulations. Proper waste disposal is the generator's responsibility.

14. TRANSPORTATION INFORMATION

Packaging for hazardous shipments must meet the specifications as required by the current editions of *International Air Transportation Association (IATA) Dangerous Goods Regulations* and the United States Department of Transportation *49 CFR*.

DOT (ground): Not regulated.

DOT (air) and IATA: **Proper Shipping Name**: Flammable liquid, n.o.s. (ethanol)
UN #: 1993
Hazard Class: 3
Packing Group: III

15. REGULATORY INFORMATION

OSHA (USA): Under the Hazard Communication Standard and the Laboratory Standard, this product is a hazardous material: it is an irritant and it is combustible.

The OSHA Standards cited above mandate that exposed workers receive proper training in the properties of this product, work practices involved with its handling and disposal, and interpretation of its MSDS. Customers who in turn send this product on to their clients or satellite facilities must supply an MSDS at least with the initial shipment.

FDA (USA): *Prefer* is for in vitro diagnostic use as a fixative in histology.

EPA (USA): *Prefer* is ignitable and is a reportable substance under SARA Title III.

16. OTHER INFORMATION

Label warnings: Irritant. Avoid prolonged, repeated contact with skin. Avoid all contact with eyes. Ingestion can cause damage to the gastrointestinal system.

Product logo:

NFPA (National Fire Protection Association) Rating:

General note: This rating is applicable only to safeguard the lives of individuals who may be concerned with fires occurring in an industrial plant or storage location. The ratings provide information to emergency personnel on whether to evacuate the area or how to perform control procedures. It is not descriptive of hazards under normal conditions of occupational use, and is even less applicable to anticipated laboratory-scale use.

Health 2: Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Flammability 2: Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

Instability 0: Materials that are normally stable even under fire conditions.

CYTYC	MSDS – PreservCyt ® Solution

1. CHEMICAL AND COMPANY IDENTIFICATION

Product Identification: PreservCyt® Solution

Trade Name/Chemical Family/Synonyms: Methanol-water solution

Product Description: A methanol based, buffered preservative solution

Product Use: A preservative solution to support cells during transport and slide preparation.

Manufacturer Cytyc Corporation
250 Campus Drive
Marlborough, Massachusetts 01752
USA
Telephone: 800-442-9892

EMERGENCY TELEPHONE NUMBERS:
(24 hours a day and 7 days a week)

For Health/Transportation/Chemical Spills
(Multilingual capabilities and free calls accepted)
Continental United States: (800) 424-9300
Outside of continental United States: +(703) 527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Registry #	Wt. %
Methanol	67-56-1	30 – 60
Water	7782-13-5	40 – 70

3. HAZARDS IDENTIFICATION:

EMERGENCY OVERVIEW: **Material is a clear flammable liquid. Inhalation of vapors may cause nonspecific discomfort (nausea, weakness), drowsiness with anesthetic effects and possible blindness. Swallowing as little as 4 ounces (118 ml) may cause blindness and in extreme cases death.**

Potential Health Effects.

Inhalation: May cause depression of central nervous system resulting in nausea, weakness, drowsiness and possibly blindness.

Eye Contact: May cause transient irritation.

Skin Contact: May cause irritation and/or dermatitis. Material may be absorbed through the skin resulting in effects similar to ingestion or inhalation.

Ingestion: May cause intoxication, Central nervous system depression, nausea, and dizziness. May damage liver, kidneys and nervous system. May cause blindness and/or death.

Target Organs: Liver, kidneys, and central nervous system.

Medical Conditions Aggravated by Exposure: Individuals with preexisting diseases of the retina (eyes) or liver may have increased susceptibility to toxicity at lower levels of successive exposure (repeated exposures).

Chronic: Liquid and vapor can penetrate skin and mucous membranes. May cause chronic liver, kidney or nervous system disorders.

4. FIRST AID MEASURES:

Inhalation: Remove patient to fresh air. If symptoms of intoxication or vision problems are apparent, get immediate medical aid.

Eye Contact: Immediately flush with clean water for at least 15 minutes. Get medical aid.

Skin Contact: Remove contaminated clothing and shoes. Flush affected area with copious amounts of water. If irritation or other symptoms are present, get immediate medical assistance.

Ingestion: **Do Not Induce Vomiting.** Give one or two glasses of water and get immediate medical aid.

Notes to Physician: Treat for CNS depression and possible renal failure.

5. FIRE FIGHTING MEASURES:

Flashpoint and Method: 80ºF (26.5ºC) Closed cup

Autoignition Temperature: 725ºF (385ºC)

Flammable Limits: LEL-6.7 UEL-36 (based on methanol component)

General Hazard: Flammable material. Heated material may form toxic and/or explosive vapors.

Fire Fighting Instructions: Wear full turnout gear with self-contained breathing apparatus. If material is not involved in fire, attempt to cool with water or remove from area. FLAME INVISIBLE IN DAYLIGHT.

Fire Fighting Equipment: Wear full turnout gear with self-contained breathing apparatus.

Extinguishing Media: Foam – Yes Alcohol Foam – Yes C02 – Yes Dry Chemical – Yes
Water – Yes Other – Water Fog

Hazardous Combustion Products: Carbon Monoxide and Carbon Dioxide

NFPA Hazard Rating: (National Fire Protection Association**)**
Health – 1
Flammability – 3
Reactivity – 0
Special Information – None

0=Insignificant
1=Slight
2=Moderate
3=High
4=Extreme
U=Unknown *=No Information

Special Information: None

6. ACCIDENTAL RELEASE MEASURES:

Land Spill Prevent runoff from entering waterways. Dyke large spills with clay. Absorb small spills with clay or kitty litter. For spills in excess of 50 gallons, contact licensed HAZWOPER responders.

Water Spill: Follow local, state and Federal guidelines and regulations.

Follow Local, State, Provincial, and Federal Guidelines for all spills.

7. HANDLING AND STORAGE:

Handling: KEEP OUT OF THE REACH OF CHILDREN. Wear recommended personal protective equipment and avoid contact with skin and eyes.

Storage: Store away from excessive heat and sources of ignition. Keep containers closed and protect from damage.
Storage Temperatures: Without cytologic sample: 59 – 86 ºF (15 – 30ºC)
With cytologic samples, for up to three weeks: 39 – 99 ºF (4 – 37ºC)

8. EXPOSURE CONTROLS / PERSONAL PROTECTIVE EQUIPMENT:

Engineering Controls: Supply exhaust and/or ventilation to keep vapor levels below threshold limit value.

Respirator: Where engineering controls are not adequate, use approved NIOSH respirators or supplied air respirators.

Protective Clothing: Chemically resistant gloves and eye protection.

Exposure Limits for Ingredients:

Ingredient	OSHA PEL	ACGIH TLV®	
Methanol	200 ppm – TWA	200 ppm – TWA 250 ppm – STEL Skin	
TWA – 8 hr STEL – 15 minute	**Canada – Alberta, British Columbia, New Brunswick, Manitoba, Ontario, Quebec, and Yukon**		**Canada – Saskatchewan**
	200 ppm – TWA 250 ppm – STEL Skin		262 mg/m^3 TWA 328 mg/m^3 STEL

9. PHYSICAL AND CHEMICAL PROPERTIES:

Vapor Pressure mm/Hg: 127
Specific Gravity (Water=1): 0.92
Solubility in Water: complete
Freezing Point (ºF/ºC): not established.
Evaporation Rate (BuAc=1): > 1
Viscosity: Not determined
Boiling Point (ºF/ºC): 148/64.5

Appearance: clear, thin
Physical State: liquid
Vapor Density (Air=1): 1.1
Percent Volatile by Volume: > 99
pH: Not applicable
Odor: Alcohol type odor

10. STABILITY AND REACTIVITY:

General Stability: Stable

Incompatible Materials And Conditions To Avoid: Strong oxidizers. (May ignite product)

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION:

For methanol: Product not tested as a mixture:
Inhalation LC50 Rat: 64000 ppm/4H
Oral LD50 Rat: 5628 mg/kg
Oral LD50 Mouse: 7300 mg/kg
Dermal LD50 Rabbit: 15800 mg/kg

12. ECOLOGICAL INFORMATION:

Material has very low aquatic toxicity.
LC_{50} Pimephales promelas (fathead minnows) 29.4 g/l/96 hr, (28-29 days old)
EC50 (30 min) Photobacterium phosphoreum: 51,000-320,000 mg/L:

13. DISPOSAL CONSIDERATION:

RCRA Hazardous Waste if Discarded? Yes. **If so, RCRA ID number:** D001, Ignitable waste.

14. TRANSPORTATION INFORMATION: DOT (Department of Transportation)

	US DOT
Proper Shipping Name:	Flammable liquids, n.o.s. (Methanol)
Hazard Class:	3
Identification Number:	UN1993
Packing Group:	III

15. REGULATORY INFORMATION:

TSCA (Toxic Substances Control Act): All ingredients listed on TSCA inventory.

CERCLA: RQ for methanol – 5,000 lbs. (2,268 kg) No TPQ established for methanol

SARA 311 Status: Immediate, fire hazard

SARA 313: Methanol is listed on the 313 Toxic Pollutant reporting list.

State Issues: Not listed for California Proposition 65

Foreign Chemical Inventories: All ingredients are listed on the chemical inventories of the following countries:
Canada (DSL)
Japan
European Union
Australia

WHMIS Status (Canada): A controlled product. Classification: B2; D1B; D2A
This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION:

Current Issue Date: February, 2005

Previous Issue Date: July, 2002

Changes to MSDS: New format and revision of text to improve clarity. Addition of non-US exposure values.

Other Information: None

Information Note: Where no corresponding data was contained in manufacturer's MSDS, additional research is required and available upon request. THE INFORMATION RELATES TO THIS SPECIFIC MATERIAL. IT MAY NOT BE VALID FOR THIS MATERIAL IF USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY ONESELF AS TO THE SUITABILITY AND COMPLETENESS OF THIS INFORMATION FOR HIS OR HER OWN PARTICULAR USE.

Material Safety Data Sheet

Histology / Cytology Reagents

Cytology Fixative (Non-Aerosol)

Section 1. Product and Preparation Information

Product Identifier	Product Use	Date Prepared
Cytology Fixative	Fixation of cytology cell spreads	August 2006
Synonym / Chemical Name		**Document #**
Denatured ethyl alcohol, primary aliphatic alcohol		107

Manufacturer/ Preparer

Surgipath Canada, Inc.
83 Terracon Place
Winnipeg, Manitoba R2J 4B3

Surgipath Medical Industries, Inc.
5205 Route 12
Richmond, IL 60071

Emergency Contact

Chemtrec USA and Canada	800.424.9300
Canadian Non-Transport Calls	800.665.7425
USA Non-Transport Calls	800.225.8867

Section 2. Preventive Measures

Personal Protection

NFPA

US DOT

Canadian WHMIS

B2

D1B

Personal Protection

Eyes	Safety glasses
Body	Laboratory coat
Respiratory	NIOSH/MSHA approved respirator when ventilation is inadequate
Hands	Latex or nitrile gloves

Emergency Overview

Highly flammable liquid and vapor, vapor may cause flash fire. Cannot be made non-poisonous. May be fatal or cause blindness if swallowed. Contains material that may cause blood, nervous system, reproductive system, liver, gastrointestinal tract, respiratory tract, skin and eye damage. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. For laboratory use only.

Engineering Controls

General mechanical ventilation or laboratory fume hood. Ensure that eyewash stations and quick drench showers are proximal to the workstation or tissue processor.

Handling and Storage

Dissipate static electricity during transfer by grounding and bonding containers and equipment. If air concentrations may exceed lower explosive limit, use explosion-proof equipment. Keep containers closed and out of reach of children. Do not use near open flames or sparks. Store at room temperature. Store in flammable liquid safety cabinet when possible.

Small Spill and Leak

Dilute with water and mop, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak

Keep away from heat and ignition sources. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Avoid skin and eye contact. Prevent entry into sewers, basements or confined areas: dike if needed. Eliminate all ignition sources. Be careful that airborne concentrations do not exceed published exposure and lower explosive limits.

Waste Disposal

Unused Product – Dispose as a regulated hazardous waste. *Spent product or spill clean up* - Follow all provincial and federal rules.

Section 3. Hazardous Ingredients

Hazardous Ingredient	% wt.	CAS Number	LD50	LC50	TDG PIN
Ethanol	<90	64-17-5	7,060 mg/kg oral rat 3,450 mg/kg oral mouse	20,000 ppm/10 hr. inhalation rat 39 gm/m³/4hr inhalation mouse	
Isopropanol	<6	67-63-0	5,045 mg/kg oral rat 3,600 mg/kg oral mouse	72,600 mg/m³ inhalation rat 53,000 mg/m³ inhalation mouse	
Methanol	<5	67-56-1	5,600 mg/kg oral rat 7,300 mg/kg oral mouse	64,000 ppm/4 hr. inhalation rat 81,000 mg/m³/14hr rabbit	
Polyethylene glycol	NA	25322-68-3	28 gm/kg oral rat	NA	

Section 4. First Aid Measures

Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.
Skin Contact	Remove contaminated clothing immediately. Wash the affected areas with soap or mild detergent and large amounts of water for at least 15 minutes.
Inhalation	Move individual to fresh air immediately. If breathing is difficult, give oxygen. If breathing has stopped, administer artificial respiration. Get medical attention.
Ingestion	Never give anything by mouth to an unconscious person. Induce vomiting. Give no more than 2 glasses of water. Get medical attention immediately.

Section 5. Physical Data

Physical State Liquid	Odor and Appearance Fragrant odor, colorless	Odor Threshold (ppm) 180 ppm Ethanol	Solubility Easily soluble in water	Auto-ignition Temp 793° F (422° C)
Vapor Pressure 36mmHg @ 20C (MeOH)	Vapor Density 1.5 (air-1)	Evaporation Rate N/A	Boiling Point 169° F (76° C)	Flash Point CC 59° F (15° C)
pH N/A	Specific Gravity 0.79 Water=1	Coeff. Water/oil Dist. N/A	Freezing Point -151° F (-101° C)	Flammable Limits LEL – 3.3% UEL – 19%

Section 6. Fire and Explosion

Flammability	Conditions	Fl. Pt - Auto Ignition - Flammable Limits
Flammable Liquid IB (Canada B2)	Excessive heat, sparks and open flames.	See Physical Data above

Explosivity

Not explosive under normal conditions of use. Vapors are heavier than air and may settle in low areas. Vapors may travel long distances to an ignition source and flash back explosively. Flame may be invisible. Not sensitive to impact. Probably will not accumulate static charge due to high electrical conductivity, however proper grounding during transfer is recommended (NFPA 77).

Hazardous Combustion Products	Means of Extinction
CO, CO2, NO, NO2, SO2, SO3	Small Fire – Use DRY chemical powder. Large Fire – Use alcohol foam, water spray or fog

Section 7. Reactivity

Stability		Hazardous Decomposition Products
Product is stable under normal conditions of use.		CO from incomplete combustion
Conditions of Reactivity NA	Hazardous Polymerization No hazardous polymerization.	Incompatibility Slightly reactive with oxidizing materials and acids.

Section 8. Toxicological Properties

Routes of Entry NA Target Organs Liver, kidney, gastrointestinal tract, reproductive and nervous systems

Effects of Acute Exposure

- Eye: Slightly hazardous in case of eye contact (irritant)
- Skin: Slightly hazardous (irritant). Skin inflammation is characterized by itching, scaling, reddening or occasionally blistering.
- Absorption: NA
- Inhalation: Slightly hazardous in case of inhalation
- Ingestion: Hazardous in case of ingestion.

Effects of Chronic Exposure

Repeated exposure by inhalation may cause system poisoning, impaired vision or blindness. Inhalation may worsen conditions such as emphysema or bronchitis. Repeated skin exposure may cause defatting of the skin.

Carcinogenic Effects

Ethanol and methanol are not classified as a human carcinogen. Isopropanol is classified as Group 3 (not classifiable) by IARC.

Reproductive Toxicity

Ethyl alcohol when used as a beverage has proven to be toxic to blood, nervous system, reproductive system, liver, gastrointestinal tract, respiratory tract, skin and eyes.

Teratogenic and Mutagenic Effects NA

Exposure Limits	OSHA PEL TWA	ACGIH TLV TWA	STEL	TWAEV (Ont.)	STE V (Ont.)	CEV (Ont.)
Ethanol	1,900 ppm	1,000 ppm	NA	1,000 ppm	NA	NA
Isopropanol	980 mg/m³	400 ppm	500 ppm	200 ppm	400 ppm	NA
Methanol	260 ppm	200 ppm	250 ppm	200 ppm	250 ppm	NA
Polyethylene glycol	NA	NA	NA	NA	NA	NA
Toluidine blue	NA	NA	NA	NA	NA	NA

Section 9. Regulatory Information

OSHA Hazardous Yes	Cal. Prop. 65 Not Listed	Canadian WHMIS B2, D1B	RCRA Regulated D001, F003
SARA 302/304 Not Listed	SARA 313 MeOH Listed	CERCLA 102A MeOH Listed	RQ 5000 lbs. MeOH
CWA 307 Not Listed	CWA 311 Not Listed	CAA 112 Release Prevention MeOH Listed	CAA 112 Reg. Flam. Substance Not Listed
CAA 112 Reg. Toxic Substance Not Listed	TSCA Inventory Listed	EEC Flammability R11 – Highly Flammable	CEPA DSL All Ingredients Listed
Proper US DOT Shipping Name Ethyl alcohol solutions, 3, UN1170 Pg. II	TDG Classification Class 3 Flammable Liquid	IATA Classification Class 3 Flammable Liquid	Limited Quantity No

The information provided above is based upon unused product. Product characteristics may change after processing, requiring further classification.

This Material Safety Data Sheet has been prepared in accordance with the Canadian Controlled Products Regulations and 29CFR1910.1200. 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.