Suzanne Miller
Feb 04

BREWER SCIENCE INC.
SAFETY DATA SHEET

This Material Safety Data Sheet has been prepared to comply with the EC Directive, Canadian WHMIS and the OSHA Hazard Communication Standard.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name: EXP02103-18

Manufacturer: Brewer Science, Inc.
2401 Brewer Drive
Rolla, MO 65401

Information Phone Number: (573) 364-0300 **Fax:** (573) 368-3318
Emergency Phone Number: (800) 255-3924
MSDS Date of Preparation: 8/25/02
Product Use: Protective Coating

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS# / EINECS#	%	EU Classification (67/548/EEC)
bis(2-methoxyethyl)ether) (diethylene glycol dimethyl ether/diglyme)	111-96-6 / 203-924-4	40-50	T R10, R19, R60, R61
Methyl Isoamyl Ketone (5-Methylhexan-2-one)	111-12-3 / 203-737-8	40-50	Xn R10, R20
Polymer	Proprietary	5-20	Not applicable

See Section 16 for further information on EU Classification.

SECTION 3: HAZARDS IDENTIFICATION

Clear liquid with a solvent odor.

EMERGENCY OVERVIEW: Flammable liquid and vapor. Causes eye, skin, and respiratory irritation. May be absorbed through the skin. May form explosive peroxides. Contains a chemical that may cause adverse reproductive and fetal effects based on studies with laboratory animals.

EU Preparation Classification (1999/45/EC): Flammable Toxic (T) R10, R19, R20, R60, R61

SECTION 4: FIRST AID MEASURES

Eye: Rinse thoroughly with water for at least 15 minutes, holding the eye lids open to be sure the material is washed out. Get immediate medical attention.

Skin: Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation or symptoms of exposure develop. Launder clothing before re-use.

Inhalation: Remove victim to fresh air. Give artificial respiration if needed. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Keep the victim calm and warm. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: 41°C (106°F) **Flammable Limits:** LEL: 1.0 vol % (Methyl isoamyl ketone)
UEL: 17.4 vol % (diglyme)

Extinguishing Media: Use water fog or spray, alcohol-foam, carbon dioxide or dry chemical.

Special Fire Fighting Procedures: Wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing. Cool fire exposed containers with water.

Unusual Fire Hazards: At temperatures above the flash point, explosive vapor-air mixtures may be formed. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

Hazardous Decomposition Products: Oxides of carbon and nitrogen and unknown materials.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill: Remove all ignition sources such as open flames, spark producing equipment, pilot lights, etc. Wear appropriate protective clothing to prevent eye and skin contact including impervious gloves, safety goggles and respirator if needed. Ventilate area. Cover with and inert absorbent material and collect into an appropriate container for disposal. Report spills and releases as required to appropriate authorities.

SECTION 7: HANDLING AND STORAGE

Handling: Avoid breathing vapors, aerosols and mists. Use with adequate ventilation. Avoid contact with the eyes, skin and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use.

Storage: Store in a cool, dry, well-ventilated location away from incompatible materials. Keep containers closed when not in use.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	Exposure Limits
Methyl Isoamyl Ketone	100 ppm PEL-TWA, 50 ppm TLV-TWA 10 ppm DFG MAK, 20 ppm EU OEL
bis(2-methoxyethyl)ether) (diethylene glycol dimethyl ether/diglyme)	None Established (PEL/TLV) 5 ppm DFG MAK skin
Polymer	None Established (PEL/TLV)

Ventilation: Use with adequate general or local exhaust ventilation to maintain exposure levels below the recommended occupational exposure limits. Use explosion-proof equipment where required.

Respiratory Protection: If needed, a NIOSH approved respirator with organic vapor cartridges may be used. For higher exposures, a supplied air respirator may be required. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.

Skin Protection: Impervious gloves are recommended. Based on available test data, Silver Shield are suggested.

Eye Protection: Chemical safety goggles recommended.

Other Protective Equipment: Impervious clothing is recommended to prevent skin contact and contamination of personal clothing. An eye wash facility and safety shower should be available in the work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Clear liquid with a solvent odor.
pH: Not available
Boiling Point: 145-162°C
Vapor Pressure: 4.5mmHg @ 20°C (methyl isoamyl ketone)
Vapor Density: 3.9
Specific Gravity: Not available
Melting Point: Not Applicable
Water Solubility: Partially Soluble
Evaporation Rate: Not available

SECTION 10: STABILITY AND REACTIVITY

Stability: **Stable:** X **Unstable:**
Prolonged exposure of diglyme to air and sunlight may form unstable peroxides.

Incompatibility/Conditions to Avoid: Strong oxidizing agents, strong bases and strong acids. Keep away from light, exposure to air, heat, sparks, flames and other sources of ignition.

Hazardous Decomposition Products: Combustion will produce oxides of carbon and nitrogen and unknown materials.

Hazardous Polymerization: **May Occur:** **Will not occur:** X

SECTION 11: TOXICOLOGICAL INFORMATION

Potential Health Effects:

Eye: May cause moderate irritation with pain and redness.

Skin: May cause redness and irritation. Repeated exposures may cause sensitization dermatitis. Diglyme may be absorbed through the skin causing effects similar to those described under inhalation.

Inhalation: Inhalation of vapors, mists or aerosols may cause mucous membrane and respiratory irritation.

Ingestion: Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Hazards: Diglyme has been reported to cause adverse reproductive effects in laboratory animals.

Carcinogen Status: None of the components of this product are listed as carcinogens by OSHA, IARC or NTP.

Medical Conditions Aggravated by Exposure: Pre-existing skin diseases.

Acute Toxicity Values:

bis(2-methoxyethyl)ether:	Oral rat LD50 - 5400 mg/kg
Methyl Isoamyl Ketone:	Oral rat LD50 - 3200 mg/kg
	Skin rabbit LD50 – 10 mL/kg
	Inhalation rat LC50 – 3813 ppm/ 6 hours
Polymer:	Oral rat LD50 - 1800 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

No ecotoxicity data is currently available.

SECTION 13: DISPOSAL INFORMATION

Dispose in accordance with all local, state and federal regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Resin Solution, Flammable ERG #127
DOT Hazard Class: 3, PG III
UN Number: UN1866
DOT Labels Required (49CFR172.101): Flammable Liquid (See 173.120 for domestic shipment exemption for combustible liquids)
Hazardous Substance (49CFR172.101): None
Reportable Quantity: N/A

IATA Shipping Name: Resin Solution, Flammable
IATA Hazard Class: 3, PG III
UN Number: UN1866
IATA Hazard Labels Required: Flammable Liquid

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

CERCLA 103 Reportable Quantity: Not applicable

SARA TITLE III:

Hazard Category for Section 311/312: Acute Health, Chronic Health, Fire Hazard

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: bis(2-methoxyethyl)ether CAS#111-96-6 40-50%
(glycol ether compound)

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

STATE REGULATIONS:
California Proposition 65: This product contains the following substances known to the State of California to cause cancer and/or reproductive toxicity: None known

INTERNATIONAL REGULATIONS:

European Community Labeling :
Contains bis(2-methoxyethyl)ether) and 5-methylhexan-2-one

R10 Flammable
R19 May form explosive peroxides.
R20 Harmful by inhalation.
R60 May impair fertility.
R61 May cause harm to the unborn child.
Restricted to professional users.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
S53 Avoid exposure – obtain special instructions before use.
S60 This material and its container must be disposed of as hazardous waste.

SECTION 16: OTHER INFORMATION

HMIS Ratings:	Health – 2*	Flammability - 2	Reactivity - 1
NFPA Ratings:	Health - 2	Flammability - 2	Reactivity - 1

EU Classes and Risk Phrases for Reference (See Sections 2 and 3):
T Toxic
Xn Harmful
R10 Flammable
R19 May form flammable peroxides.
R20 Harmful by inhalation.
R60 May impair fertility.
R61 May cause harm to the unborn child.

This above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. Brewer Science shall not be held liable for any damage resulting from handling or from contact with the above product.