

**BREWER SCIENCE INC.  
MATERIAL 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**

**Product Name:** XHRI-7, XHRI-10, XHRI-11, XHRI-16, XHRI-20

**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:** 4/18/97

---

**SECTION 2: HAZARDOUS COMPONENTS**

Component	CAS#	%	Exposure Limits
1-Methoxy-2-propanol (Propylene glycol monomethyl ether)	107-98-2	70-90	100 ppm TLV-TWA 150 ppm TLV-STEL
2-Methoxy-1-propanol	1589-47-5	1-2	None Established (PEL/TWA)
Ethyl lactate	97-64-3	7-10	None Established (PEL/TLV)
Non-Hazardous Components Present Greater than 1% Modified Novolac Resin Aminoplast Resin			

---

**SECTION 3: HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

Amber liquid with a solvent odor. This product is flammable. May cause eye, skin, and respiratory irritation. May cause headache, dizziness, nausea and other symptoms of central nervous system depression.

**Potential Health Effects:**

**Eye:** May cause mild to moderate eye irritation. Corneal injury is unlikely.

**Skin:** May cause irritation with prolonged or repeated exposure. 1-Methoxy-2-propanol may be absorbed through the skin causing symptoms of headache, dizziness, nausea, and drowsiness.

**Inhalation:** Inhalation of vapors, mists, or aerosols may cause nose and throat irritation with the possibility of central nervous system depression. Symptoms of central nervous system depression include headache, dizziness, drowsiness, nausea and unconsciousness.

**Ingestion:** Swallowing may cause gastrointestinal irritation and central nervous system depression with symptoms similar to those described under inhalation.

**Chronic Hazards:** Chronic absorption may cause slight kidney changes based on studies with laboratory animals.

**Carcinogen Status:** This product contains no chemicals at a concentration of greater than or equal to 0.1% that are listed as carcinogens by OSHA, IARC or NTP.

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

---

#### 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 AND EXPLOSION DATA

Flash Point: 35°C (95°F)

Flammable Limits:

LEL: 1.6 vol %

UEL: 12 vol %

Extinguishing Media: Use water fog or spray, universal 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: Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. As with any ether, 1-methoxy-2-propanol may form highly reactive peroxides upon contact with air.

Hazardous Decomposition Products: Oxides of carbon, sulfur and nitrogen, formaldehyde, phenol, ammonia 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

Ventilation: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.

Respiratory Protection: If needed, a NIOSH/MSHA approved respirator with organic vapor cartridges may be used. For higher exposures (greater than 10 times the TLV), 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, butyl rubber or Silver Shield gloves are suggested.

**Eye Protection:** Chemical safety goggles recommended.

**Other Protective Equipment:** Impervious clothing is required 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:** Amber liquid with objectionable odor.

**pH:** Not available

**Boiling Point:** 114 - 118°C

**Vapor Pressure:** 10.9 mm.Hg @ 25°C (1-methoxy-2-propanol)

**Vapor Density:** Greater than 3

**Specific Gravity:** 0.92 - 1.1

**Melting Point:** Not Applicable

**Water Solubility:** Partially Soluble

**Evaporation Rate:** Not available

---

## SECTION 10: STABILITY AND REACTIVITY

**Stability:**      **Stable:** X      **Unstable:**

**Incompatibility/Conditions to Avoid:** Strong oxidizing agents, strong acids, strong alkalis, reducing agents. Keep away from heat, sparks, flames and other sources of ignition.

**Hazardous Decomposition Products:** Combustion will produce oxides of carbon, sulfur and nitrogen, formaldehyde, phenol, ammonia and unknown materials.

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

---

## SECTION 11: TOXICOLOGICAL INFORMATION

1-Methoxy-2-propanol: Oral rat LD50 - 5660 mg/kg  
Inhalation rat LC50 - 10,000 ppm/5 hr  
Skin rabbit LD50 - 13 gm/kg

Ethyl Lactate: Oral rat LD50 - >5000 mg/kg  
Skin rabbit LD50 - >5000 mg/kg

Modified Novolac resin: No toxicity data available

Aminoplast Resin: Oral rat LD50 - >5000 mg/kg (estimated)  
Skin rabbit LD50 - >2000 mg/kg (estimated)

---

## SECTION 12: ECOLOGICAL INFORMATION

No ecotoxicity data is available for this product at this time.

---

## 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

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, Fire Hazard

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

Section 302 Extremely Hazardous Substances (TPO): None

EPA Toxic Substances Control Act (TSCA) Status: : This product contains a substance(s) that is not listed on the EPA TSCA inventory. A low volume exemption notice has been filed. This exemption restricts the use of this product to Microelectronic Manufacturing Applications.

### STATE REGULATIONS:

California Proposition 65: These products contain the following substances known to the State of California to cause cancer and/or reproductive harm: This substance contains residual levels of Formaldehyde (CAS #000050-00-0) which is less than 0.001%.

---

## SECTION 16: OTHER INFORMATION

HMIS Ratings: Health - 2

Flammability - 3

Reactivity - 0

NEPA Ratings: Health - 2

Flammability - 3

Reactivity - 0

---

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.