

Suzanne Miller

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: EXP03037

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: 06/06/03

Product Use: Protective Coating

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS# / EINECS#	%	EU Classification (67/548/EEC)
Cyclohexanone	108-94-1 / 203-631-1	80-95	Xn R10, R20
Polymer	Proprietary	5-15	Not Applicable

See Section 16 for further information on EU Classification.

SECTION 3: HAZARDS IDENTIFICATION

Clear liquid with a sweet, solvent odor.

**EMERGENCY OVERVIEW:** Flammable liquid and vapor. May cause eye and skin irritation. Inhalation of vapors may cause mucous membrane and respiratory irritation, headache, dizziness, nausea and other symptoms of central nervous system depression. May be absorbed through the skin to cause symptoms similar to inhalation. Prolonged overexposure may cause liver and kidney damage.

EU Preparation Classification (1999/45/EC): Flammable Harmful (Xn) R10, R20

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: 44°C (111°F)

Flammable Limits: LEL: 1.1 vol %

UEL: 9.4 vol %

Extinguishing Media: Use water fog or spray, 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. Vapors may form explosive mixtures with air in confined areas.

**Hazardous Decomposition Products:** Oxides of carbon, hydrocarbons, hydrogen chloride, chlorine compounds.

#### 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
Cyclohexanone	50 ppm PEL-TWA, 20 ppm TLV-TWA skin, 10 ppm EU-TWA 20 ppm EU-STEL skin
Polymer	None Established (PEL/TLV)

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

**Respiratory Protection:** If needed, a NIOSH 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 applicable regulations and good Industrial Hygiene practice.

**Skin Protection:** Impervious gloves are recommended. Based on available test data, butyl rubber gloves are suggested.

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

**Other Protective Equipment:** Impervious clothing as needed 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 sweet, solvent odor. The odor threshold for cyclohexanone is reported to be 0.12 ppm (mean value).

**pH:** Not available

**Specific Gravity:** Not available

**Boiling Point:** 155°C (cyclohexanone)

**Melting Point:** Not Applicable

**Vapor Pressure:** 5 mm Hg @ 26°C (cyclohexanone)

**Water Solubility:** Partially Soluble

**Vapor Density:** 3.4

**Evaporation Rate:** Not available

#### SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable: X Unstable:

**Incompatibility/Conditions to Avoid:** Strong oxidizing agents, acetal, acetal polymers/copolymers, amine containing materials. Keep away from heat, sparks, flames and other sources of ignition.



**Hazardous Decomposition Products:** Combustion will produce oxides of carbon, hydrocarbons, hydrogen chloride, chlorine compounds.

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

#### SECTION 11: TOXICOLOGICAL INFORMATION

##### Potential Health Effects:

**Eye:** May cause moderate irritation with pain, redness and blurred vision. Corneal injury is possible.

**Skin:** May cause redness, irritation and dryness. Prolonged or repeated exposure may cause defatting and dermatitis. Cyclohexanone is 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. Central nervous system depression with symptoms of headache, dizziness, nausea, drowsiness and unconsciousness may also occur.

**Ingestion:** Swallowing may cause central nervous system depression with headache, nausea, dizziness and unconsciousness; gastrointestinal irritation and injury to the lungs, liver and brain.

**Chronic Hazards:** Chronic absorption of cyclohexanone may cause damage to the liver and kidneys. Cyclohexanone 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, liver and kidney diseases.

##### Acute Toxicity Values:

Cyclohexanone: Oral rat LD50 - 1535 mg/kg  
Inhalation rat LC50 - 8000 ppm/4 hr  
Skin rabbit LD50 - 1 mL/kg

Polymer: No data available

#### SECTION 12: ECOLOGICAL INFORMATION

This product has not been tested as a whole. The following ecotoxicity data is available for the components:

Cyclohexanone: LC50 pimephales promelas (fathead minnow) 527 mg/l/96 hr flow-through bioassay.

#### SECTION 13: DISPOSAL INFORMATION

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

#### SECTION 14: TRANSPORT INFORMATION

**DOT Shipping Name:** Cyclohexanone Solution

ERG #127

**DOT Hazard Class:** 3, PG III

**UN Number:** UN1915

**DOT Labels Required (49CFR172.101):** Flammable Liquid (See 173.120 for domestic shipment exemption for combustible liquids)

**Hazardous Substance (49CFR172.101):** Cyclohexanone (RQ 5000 lbs)

**Reportable Quantity:** Product - 5,260 lbs

**IATA Shipping Name:** Cyclohexanone Solution

**IATA Hazard Class:** 3, PG III

**UN Number:** UN1915

**IATA Hazard Labels Required:** Flammable Liquid

## SECTION 15: REGULATORY INFORMATION

### U.S. FEDERAL REGULATIONS:

CERCLA 103 Reportable Quantity: 5,260 lbs. (cyclohexanone – 5,000 lbs.)

### 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: None

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 harm: None known

### INTERNATIONAL REGULATIONS:

Canadian Environmental Protection Act: All of the components of this product are listed on the Canadian Domestic Substances List (DSL).

European Inventory of Commercial Chemical Substances: All of the components of this product are listed on the EINECS inventory.

### European Community Labeling:

	R10 Flammable R20 Harmful by inhalation. S24 Avoid contact with the skin. S37 Wear suitable gloves. S51 Use only in well ventilated areas. S60 This material and its contents must be disposed of as hazardous waste.
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## SECTION 16: OTHER INFORMATION

HMIS Ratings: Health – 2\*      Flammability - 2      Reactivity - 0  
NFPA Ratings: Health - 2      Flammability - 2      Reactivity - 0

### EU Classes and Risk Phrases for Reference (See Sections 2 and 3):

Xn Harmful  
R10 Flammable  
R20 Harmful by inhalation.

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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.