

**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: APX-K1

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: 05/10/99

---

**SECTION 2: HAZARDOUS COMPONENTS**

<u>Component</u>	<u>CAS#</u>	<u>%</u>	<u>Exposure Limits</u>
2-Propanol	67-63-0	>90	983mg/m <sup>3</sup> TLV-TWA (ACGIH)
Non-hazardous ingredients	proprietary	5-10	
Organofunctional silane	Proprietary	<1	

---

**SECTION 3: HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

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: Irritating and will injure eye tissue if not removed promptly

Skin: Frequent or prolonged contact may irritate and cause dermatitis.  
Low order of toxicity.

Inhalation: Vapor concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.  
Negligible hazard at ambient temperature (-18 to 39 °C).

Ingestion: Minimal toxicity.  
Small amounts of the liquid aspirated into the respiratory system during ingestion, or from vomiting, may cause bronchiopneumonia or pulmonary edema.

Chronic Hazards: In developmental toxicity studies conducted by the Chemical Manufacturers Association, unexpected acute toxicity was found when 2-propanol was administered to pregnant rabbits by gavage. There were no unexpected toxic effects in pregnant rats exposed in the same study. In rats there were some relatively mild developmental effects at maternally toxic levels. There was no evidence of developmental toxicity in the rats at levels which did not also produce maternal toxicity. There were no indications of developmental toxicity in the rabbits at any exposure level. Findings from multigeneration reproduction study indicate that infant and immature rats are more sensitive than their parents to the

acute oral toxicity induced by high (1000mg/kg/day) doses of 2-propanol. The effect levels for rats and rabbits were at several times the maximum exposure that would occur at the TLV. This information has been reported to the U.S. EPA under the provisions of Section 8(e) of TSCA.

Carcinogen Status: None of the components present in this material at concentrations equal to or greater than 0.1% are listed as carcinogenic by IARC, NTP or OSHA.

Medical Conditions Aggravated by Exposure: Not determined.

---

#### SECTION 4: FIRST AID MEASURES

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

Skin Contact: Immediately flush with large amounts of water: use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

Inhalation: Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

Ingestion: If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

---

#### SECTION 5: FIRE AND EXPLOSION DATA

Flash Point: 22°C Flammable Limits: LEL: 2.0 vol% @ 25°C  
UEL: 12.7 vol% @ 25°C

Autoignition: >350°C

General Hazard: Flammable liquid, can release vapors that form flammable mixtures at temperatures at or above the flash point.

"Empty" containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT. FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconitioner, or properly disposed of.

Extinguishing Media: Use alcohol resistant foam or dry chemical.

Special Fire Fighting Procedures: Use water spray to cool fire exposed surfaces and to protect personnel. Shut off "fuel" to the fire. If a leak or spill has not ignited, use water spray to dispense the vapors. Either allow fire to burn under controlled condition or extinguish with alcohol type foam and dry chemical. Try to cover liquid spills with foam.

Hazardous Decomposition Products: No unusual decomposition products.

---

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill: Remove all ignition sources such as open flames, spark producing equipment, pilot lights, etc. Prevent additional discharge of material, if possible to do so without hazard. For small spills implement cleanup procedures; for large spills implement cleanup procedures and, if in public area, keep public away and advise authorities. Also, if this product is subject to CERCLA reporting ( see Section 15: REGULATORY INFORMATION) notify the National Response Center.

Prevent liquid from entering sewers, watercourses, or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.

Recover by pumping (use an explosion proof or hand pump) or with a suitable absorbent.

Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

**Water Spill:** Eliminate sources of ignition. Warn occupants and shipping in surrounding and downwind areas of fire and explosion hazard and request all to stay clear.

Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

---

---

## SECTION 7: HANDLING AND STORAGE

**Electrostatic Accumulation Hazard:** No, but use proper grounding.

**Storage Temperature:** Ambient      **Loading/Unloading Temperature:** Ambient

**Storage & Handling:** Keep containers closed. Handle and open containers with care.

Store in a cool, well ventilated place away from incompatible materials. Do NOT handle or store near an open flame, heat or other sources of ignition. Protect material from direct sunlight.

This material is not a static accumulator, but use proper grounding procedures.

Do NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. Do NOT reuse empty containers without commercial cleaning or reconditioning.

---

---

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ventilation:** The use of mechanical dilution ventilation is recommended whenever this product is used in a confined space, is heated above ambient temperatures, or is agitated. Ventilation equipment must be explosion proof.

**Respiratory Protection:** Where concentrations in air may exceed the limits given in this Section and engineering, work practice or other means of exposure reduction are not adequate, wear an appropriate NIOSH/MSHA approved respirator.

**Skin Protection:** For open systems where contact is likely, wear long sleeves and chemical resistant gloves.

**Eye Protection:** For open systems wear chemical safety goggles. Where contact may occur, wear safety glasses with side shields.

**Workplace Exposure Guidelines:**

OSHA REGULATION 29CFR1910.1000 REQUIRES THE FOLLOWING PERMISSIBLE EXPOSURE LIMITS:

A TWA of 400 ppm (980 mg/m<sup>3</sup>) and a STEL of 500 ppm (1225 mg/m<sup>3</sup>) for 2-propanol.

The recommended permissible exposure levels indicated above reflect the levels revised by OSHA in 1989 or in subsequent regulatory activity. Although the 1989 levels have since been vacated by the 11th Circuit Court of Appeals, Exxon Chemical recommends that the lower exposure levels be observed as reasonable worker protection.

THE ACGIH RECOMMENDS THE FOLLOWING THRESHOLD LIMIT VALUES:

A TWA of 400 ppm (983 mg/m<sup>3</sup>), and a STEL of 500 ppm (1230 mg/m<sup>3</sup>) for 2-propanol.

---

---

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**Appearance and Odor:** Clear liquid with an odor of alcohol.

**pH:** Not available

**Boiling Point:** Not available

**Vapor Pressure:** Not available

**Specific Gravity:** Not available

**Melting Point:** Not available

**Water Solubility:** Not available

Vapor Density: Not available

Evaporation Rate: Not available

---

---

**SECTION 10: STABILITY AND REACTIVITY**

Stability:            Stable: X                    Unstable:

Incompatibility: Caustics, amines, alkanolamines, aldehydes, strong oxidizing agents, and chlorinated compounds.

Conditions to Avoid: Not applicable

Hazardous Decomposition Products: None.

Hazardous Polymerization: May Occur:            Will not occur: X

---

---

**SECTION 11: TOXICOLOGICAL INFORMATION**

Please refer to Section 3 for available information on potential health effects.

---

---

**SECTION 12: ECOLOGICAL INFORMATION**

No ecotoxicity data is available for this product at this time. Please refer to Section 6 for information regarding accidental releases and Section 15 for regulatory reporting information.

---

---

**SECTION 13: DISPOSAL INFORMATION**

Dispose in accordance with all local, state and federal regulations. Please refer to Sections 5, 6, and 15 for disposal and regulatory information.

---

---

**SECTION 14: TRANSPORT INFORMATION**

Department of Transportation (DOT):

DOT SHIPPING DESCRIPTION: ISOPROPANOL, 3, UN 1219, II

---

---

**SECTION 15: REGULATORY INFORMATION**

**U.S. FEDERAL REGULATIONS:**

CERCLA: Not available.

SARA TITLE III: Under the provisions of Title III, Section 311/312 of the Superfund Amendments and Reauthorization Act, this product is classified into the following hazard categories:

Immediate Health    Delayed Health                    Fire

This information may be subject to the provisions of the Community Right-to-Know Reporting Requirement (40 CFR 370) if threshold quantity criteria are met.

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

**INTERNATIONAL REGULATIONS:**

Canadian WHMIS Classification: not determined

Canadian Environmental Protection Act: not determined

European Inventory of Commercial Chemical Substances: not determined

European Community Labeling Classification: not determined

European Community Risk and Safety Phrases: not determined

Australia: not determined

Japan: not determined

**STATE REGULATIONS:**

California Proposition 65: Not determined.

=====  
**SECTION 16: OTHER INFORMATION**  
=====

NFPA Ratings:

Health	1
Flammability	2
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.  
=====