

1 HEALTH

1 FLAMMABILITY

0 PHYSICAL HAZARD

# MATERIAL SAFETY DATA SHEET

## Kowa American Corporation

CHEMTREC 24-HOUR EMERGENCY NUMBER (800) 424-9300

### SECTION 1

#### CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:**

**Propylene carbonate  
[PC]**

**Distributor's Name and Address  
in United States:**

Kowa American Corporation  
55 East 59<sup>th</sup> Street, 19<sup>th</sup> Floor  
New York, NY 10022  
Telephone: (212) 303-7800  
Facsimile: (212) 310-0101

**CHEMTREC 24-HOUR Emergency Number:**

**(800) 424-9300**

**Date Prepared:**

January 21, 2009  
[previous version: *none*]

### SECTION 2

#### COMPOSITION AND INFORMATION ON INGREDIENTS

| <u>Ingredient</u>   | <u>CAS Registry No.</u> | <u>Weight %</u>              | <u>Exposure Limits</u> |
|---------------------|-------------------------|------------------------------|------------------------|
| Propylene carbonate | 108-32-7                | 99.5% (min.)<br>99.6% (typ.) | Not Established        |
| Water               | 7732-18-5               | < 0.03%                      | Not Established        |

Notes on Composition and Information on Ingredients

None

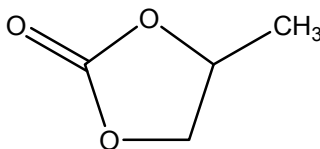
## OTHER PRODUCT INFORMATION

**Chemical Name:** 1,3-Dioxolan-2-one, 4-methyl- (9CI)

**Synonym:**

- 1,2-Propylene carbonate
- 1,2-Propanediol carbonate
- 2-Methyl-1,2-ethylene carbonate

**Chemical Structure:**



**Molecular Formula:** C<sub>4</sub>H<sub>6</sub>O<sub>3</sub>

**Molecular Weight:** 102.1

### SECTION 3 HAZARDS IDENTIFICATION

#### \*\*\*Emergency Overview\*\*\*

Clear colorless liquid with pleasant fruity odor. Combustible in the presence of an ignition source. May be irritating to the eyes. Aspiration hazard if swallowed – can enter lungs and cause damage. Keep container in a well ventilated place. Moisture contamination may result in pressure build-up in containers. Avoid all ignition sources. Wear eye, skin, and respiratory protection. In case of contact with skin or eyes, rinse with water. Avoid release to the environment. Expected to be biodegradable. Not expected to bioaccumulate. Partially water-soluble.

## POTENTIAL HEALTH EFFECTS

**EYES:** May be irritating to the eyes. More serious effects may result if exposure is not treated. Vapors may irritate eyes.

**INHALATION:** Vapors may be irritating to the upper respiratory tract (including nasal tissues). Prolonged exposure may be harmful and cause adverse effects including labored breathing and drowsiness, as well as damage to the upper respiratory tract and eyes.

**SKIN:** Generally not expected to be irritating to the skin. Prolonged or excessive exposure may result in adverse effects. The irritancy of this material varies from person to person. Generally not expected to be absorbed through the skin.

**INGESTION:** Oral toxicity of this material is expected to be low. Adverse effects from over exposure may occur and include central nervous system effects. This material may present an aspiration hazard if swallowed.

**CHRONIC EFFECTS/CARCINOGENICITY:** Not regulated as a carcinogen. In a 2-year dermal study conducted in mice, this compound did not produce skin tumors.

NTP: *Not listed*

IARC: *Not listed*

OSHA: *Not listed*

**MUTAGENICITY:** This compound has generally been found to be negative in *in vitro* mutagenicity testing. Limited *in vivo* mutagenicity testing has also produced negative results.

**TERATOGENICITY (birth defects):** This compound did not cause developmental effects when tested in rats.

**REPRODUCTIVE TOXICITY:** No reproductive data are available on this material.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** None known.

**INCOMPATIBILITY:** Not known.

**SIGNS AND SYMPTOMS OF EXPOSURE:** Eye and respiratory tract irritation; excessive exposure may cause central nervous system effects.

## SECTION 4 FIRST AID MEASURES

### FIRST AID MEASURES

**SKIN:** Wash with plenty of water, then with soap and water for 15 minutes. Discard contaminated clothing and shoes. Call physician immediately if exposed to large quantities and/or if contact is prolonged.

**EYES:** Immediately flush with a continuous water stream for at least 20 minutes. Washing immediately after exposure is expected to be effective in preventing damage to the eyes. Get immediate medical attention.

**INHALATION:** Remove to fresh air. If not breathing give artificial respiration. If there is breathing difficulty, give oxygen. Get immediate medical attention.

**INGESTION/SWALLOWED:** Do not induce vomiting. Dilute by giving 1 or 2 glasses of milk or water. Nothing by mouth if unconscious. Get immediate medical attention.

**NOTE TO HEALTH CARE PROFESSIONALS:** None.

## SECTION 5 FIRE FIGHTING MEASURES

**FLASH POINT:** 253 °F / 123 °C [closed cup]

**AUTOIGNITION TEMPERATURE:** 455 °C

**EXPLOSION/FLAMMABLE LIMITS:** LEL: 1.7% UEL: 32.5%

**EXTINGUISHING MEDIA:** Use dry chemical, foam, carbon dioxide, and water spray/fog as needed. For large fires alcohol resistant foams are preferred.

**SPECIAL FIRE FIGHTING PROCEDURES:** This material is combustible in the presence of an ignition source. As in any fire, wear a self-contained breathing apparatus pressure demand (MSHA/NIOSH approved or equivalent) and full protective gear. Toxic vapors may evolve. Fight fires from a safe distance or protected areas. Fire hoses with fog nozzles may be used for controlling fires. Use of large volumes of water may produce run-off that could be harmful to aquatic life and/or pose a hazardous waste disposal problem. This substance is partially water-soluble and therefore the use of water during fire fighting is expected to be relatively effective. Water will dilute the compound, without the formation of an appreciable surface slick, and is not expected to spread flaming.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** This material is combustible in the presence of an ignition source. Sealed containers can explode in the heat of fire. Vapors may travel to ignition source. Run off may create an explosion, fire, and environmental hazard.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**SPILL/RELEASE AND CLEANUP PROCEDURES:** In case of spill, evacuate the area and remove all ignition sources. Dike and contain spill with vermiculite, clay-based absorbents, or other absorbent materials such as polyethylene fiber and polypropylene fiber products. Do not discharge the washings and other effluents into ponds, streams, or lakes. Wear appropriate respiratory and protective clothing as described in Section 8 during any cleanup and response activities. In the event of an uncontrolled release of this material, the user should determine if the release is reportable under applicable laws and regulations. This substance is partially water-soluble and is not expected to form an appreciable surface slick.

## SECTION 7 HANDLING AND STORAGE

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** This material must be stored in an area free of heat and all ignition sources. Moisture contamination may result in a pressure build-up in containers – avoid exposure to moisture. Store in a cool dry place.

**OTHER PRECAUTIONS:** Do not drop. Keep away from fire, heat, open flames, lights, and all other ignition sources. Wear goggles and gloves when handling. Avoid breathing vapors. Eye-wash stations and emergency showers need to exist in areas where the material is handled, especially areas where loading and unloading operations occur. Wash hands thoroughly after handling and before eating, drinking, or smoking. Keep out of reach of children. Ground all containers when transferring the material.

Do not contaminate water, food, or feed by storage or disposal. Keep the product in original containers. Store in cool, dry, well ventilated, low fire risk area away from sunlight. Keep containers closed. Store only in approved containers, under approved conditions. Avoid pressure build-up in containers. An automatic water spray device should be immediately available. A spill control and containment plan should be provided. Storage area should not be subject to rapid temperature changes as such changes may cause increased internal pressure. Isolate from toxic materials or substances that may release corrosive, toxic, or flammable fumes on reaction.

|   |
|---|
| <b>SECTION 8</b><br><b>EXPOSURE CONTROLS AND PERSONNEL PROTECTION</b> |
|---|

**RESPIRATORY PROTECTION:** Respirators equipped with organic vapor cartridges are anticipated to provide adequate respiratory protection during short-term exposures to low vapor concentrations of the material. Workers should wear a supplied-air respirator or self-contained breathing apparatus any time exposure is above low levels or during extended exposure periods. Use MSHA/NIOSH-approved respiratory equipment. Respirators should be selected based on the form and concentration of the contaminant in the air and in accordance with OSHA (29 CFR 1910.134). Handle only in the presence of adequate ventilation.

**PROTECTIVE GLOVES:** Wear chemical resistant gloves appropriate to the conditions to prevent skin exposure. Gloves made of **NEOPRENE** are anticipated to afford adequate hand protection. Rinse and remove gloves immediately after use, and wash hands thoroughly with soap and water. Gloves should be removed and replaced immediately if there are any signs of degradation or breakthrough.

**PROTECTIVE CLOTHING:** Wear protective clothing and boots impervious to the product for the duration of the anticipated exposure if there is a potential for skin contact. An emergency shower should be readily accessible. Discard any contaminated clothing.

**EYE PROTECTION:** Chemical safety goggles meeting the specifications of ANSI Standard Z87.1 should be worn whenever there is the possibility of contact with the eyes. Spectacle type safety glasses do not provide satisfactory protection. An eyewash fountain should be readily accessible. Wear plastic face shield in addition to safety goggles where there is a danger of splashing.

**AIR MONITORING:** No information is available.

**EXPOSURE GUIDELINES:** No exposure guidelines have been established for this substance by OSHA, ACGIH, or NIOSH.

**SECTION 9**  
**PHYSICAL AND CHEMICAL PROPERTIES**

|  |                               |
|--|-------------------------------|
| <b>Appearance:</b>                       | Clear colorless liquid        |
| <b>Odor:</b>                             | Pleasant fruity odor          |
| <b>Boiling Point:</b>                    | 240 °C (760 mm Hg)            |
| <b>Specific Gravity:</b>                 | 1.200 (20 °C)                 |
| <b>pH:</b>                               | ~7                            |
| <b>Bulk Density:</b>                     | 10.0 lbs./gal.                |
| <b>Vapor Pressure:</b>                   | 0.03 mm Hg (20 °C)            |
| <b>Refractive Index (n<sub>D</sub>):</b> | 1.419 (25 °C)                 |
| <b>Evaporation Rate:</b>                 | < 0.005 (butyl acetate = 1.0) |
| <b>Viscosity:</b>                        | 2.4 cps (25 °C)               |
| <b>Freezing Point:</b>                   | -49 °C                        |
| <b>Solubility (in Water):</b>            | 21%                           |
| <b>Solubility (Water in PC):</b>         | 8%                            |
| <b>Color (APHA):</b>                     | 15 (max.); 10 (typ.)          |
| <b>Volatile (%)<sup>1</sup>:</b>         | 28.5%                         |

Notes on Physical and Chemical Properties

<sup>1</sup> ASTM D2369.

**SECTION 10**  
**STABILITY AND REACTIVITY**

**STABILITY:** Stable under normal conditions.

**CONDITIONS TO AVOID:** Avoid exposure to moisture. Avoid heat, fire, open flames, direct light, ignition sources, and UV radiation.

**INCOMPATIBILITY/MATERIALS TO AVOID:** Oxidizing and reducing agents. Water.

**HAZARDOUS DECOMPOSITION OR BYPRODUCTS:** Propylene carbonate can decompose at high temperatures to propylene oxide and carbon dioxide.

**HAZARDOUS POLYMERIZATION:** Hazardous polymerization will not occur.

**SECTION 11  
TOXICOLOGICAL INFORMATION**

**ACUTE TOXICOLOGICAL DATA:**

| Test                            | Result               |
|---------------------------------|----------------------|
| Oral Rat LD <sub>50</sub>       | > 30,000 mg/kg       |
| Oral Mouse LD <sub>50</sub>     | > 20,000 mg/kg       |
| Dermal Rabbit LD <sub>50</sub>  | > 20,000 mg/kg       |
| Inhalation Rat LC <sub>50</sub> | > 5 g/m <sup>3</sup> |

**EYE IRRITATION DATA:** This compound produced slight to moderate eye irritation when tested in rabbits.

**SKIN IRRITATION DATA:** This compound did not cause skin irritation when tested in rabbits.

**SKIN SENSITIZATION DATA:** This compound did not cause skin sensitization when tested in humans.

**SUBCHRONIC DATA:** In subchronic toxicity testing, this compound produced limited adverse effects.

**REPRODUCTIVE TOXICITY:** No data are available.

**TERATOGENICITY (birth defects):** This compound did not cause developmental effects when tested in rats.

**MUTAGENICITY:** This compound has generally been found to be negative in *in vitro* mutagenicity testing. Limited *in vivo* mutagenicity testing has also produced negative results.

**CHRONIC EFFECTS/CARCINOGENICITY:** In a 2-year dermal study conducted in mice, this compound did not produce skin tumors. No other information or data are available.

**SECTION 12  
ECOLOGICAL INFORMATION**

**SUMMARY OF ECOLOGICAL DATA:** Not expected to be toxic to aquatic organisms. Low potential to bioaccumulate and readily biodegradable.

## ECOTOXICOLOGICAL DATA:

| Test                                 | Result           |
|--------------------------------------|------------------|
| Fish LC <sub>50</sub> 96-hour        | > 1,000 mg/liter |
| Daphnia EC <sub>50</sub> 48-hour     | > 1,000 mg/liter |
| Algae EC <sub>50</sub> 72-hour       | > 900 mg/liter   |
| Bacteria EC <sub>10</sub> 30-minutes | > 800 mg/liter   |

**ENVIRONMENTAL FATE DATA:** This compound was found to be readily biodegradable in several studies. Modeling data indicate that this substance is not expected to bioaccumulate.

**PHYSICAL/CHEMICAL PROPERTIES:** The measured Log K<sub>ow</sub> was found to be -0.48. The measured water solubility was determined to be 210 g/L.

### SECTION 13 DISPOSAL CONSIDERATIONS

**RCRA CLASSIFICATION:** If discarded in its manufactured form, this product is not expected to be a hazardous waste under RCRA. However, it is the responsibility of the user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste.

**SPECIAL INSTRUCTIONS:** Do not discharge effluent containing this product into municipal sewers or open bodies of water. This material is soluble in water. This substance may be a characteristic hazardous waste under RCRA. All recovered material should be packaged, labeled, transported, and disposed of in conformance with applicable laws and regulations. Incinerate the wastes in an approved facility that complies with local, state, and federal regulations. For disposing of the container, completely empty the container. Rinse empty container with water and dispose of the container in a sanitary landfill or by incineration.

### SECTION 14 TRANSPORT INFORMATION

**U.S./INTERNATIONAL SHIPPING INFORMATION:** This product is not regulated as dangerous or hazardous goods under DOT, IMO/IMDG, ICAO, IATA, or UN shipping regulations.

**SUGGESTED SHIPPING NAME:** "Propylene carbonate"

**SECTION 15**  
**REGULATORY INFORMATION**

**REGULATORY STATUS:** All chemical substances contained within this product either are listed on the Toxic Substances Control Act (TSCA) Chemical Substance Inventory or exempt under TSCA. The chemical substances contained within this product, including its impurities, may be subject to specific reporting/notification, recordkeeping, and/or testing requirements under: TSCA, EPCRA/SARA III, RCRA, CERCLA, CAA, SDWA, and CWA.

The table below shows the international chemical inventory status of propylene carbonate:

| <u>Country</u> | <u>Inventory</u> | <u>Listed</u> | <u>Not Listed</u> | <u>Notes</u>                                   |
|----------------|------------------|---------------|-------------------|--|
| Australia      | AICS             | √             |                   |  |
| Canada         | DSL              | √             |                   |  |
|                | NDSL             |               |                   | Not applicable                                 |
| China          | IECS             | √             |                   |  |
| European Union | REACH            | √             |                   | Intermediate List of Pre-Registered Substances |
| Japan          | ENCS             | √             |                   | 5-524  |
| New Zealand    | NZIoC            | √             |                   | HSNO approval                                  |
| Philippines    | PICCS            | √             |                   |  |
| South Korea    | ECL              | √             |                   | KE-23785                                       |
| U.S.           | TSCA             | √             |                   |  |

**EPCRA SECTION 313 SUPPLIER NOTIFICATION:** This product contains no chemicals at or above *de-minimis* levels subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act.

**CALIFORNIA PROPOSITION 65:** This product contains propylene oxide [CAS RN 75-56-9], a substance known to the state of California to cause cancer. Propylene oxide is present in this product at trace levels. This information is provided to assist users of this product that conduct business in California in discharging any warning obligations that that person may have under California Proposition 65.

**STATUS UNDER THE CLEAN AIR ACT:** Under the Clean Air Act, propylene carbonate is no longer regulated by the U.S. Environmental Protection Agency as a volatile organic compound (VOC) for purposes of meeting the national ambient air quality standard for ozone. 74 Fed. Reg. 3437; January 21, 2009. The link for this rule is available at: <http://edocket.access.gpo.gov/2009/pdf/E9-1150.pdf>.

Depending on the individual state, the VOC excluded status of propylene carbonate may be automatically added to a state's list of VOC excluded compounds or may require that a state take specific action to add the compound. (California must specifically add propylene carbonate to its list of VOC excluded compounds.) To determine the status of propylene carbonate in each state, visit the National Association of Clean Air Agencies (NACAA) website which identifies the proper contact person for each state: <http://www.4cleanair.org/>. In addition, propylene carbonate is not regulated as a hazardous air pollutant (HAP) or ozone depleting substance (ODS).

**SECTION 16**  
**OTHER INFORMATION**

**DISCLAIMER:** The information presented herein is believed to be factual. However, none of this information is to be taken as a warranty or representation for which Kowa American Corporation, its affiliates, the chemical manufacturer, or the preparer bears legal responsibility. The user should review any recommendation in the specific context of the intended use to determine whether it is appropriate.