

## Safety Data Sheet

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### 1. Chemical product and company identification

Product name : 2-PROPANOL

#### Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.  
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan  
 Name of section : Electronic materials division technical department  
 Telephone number : +81-3-6214-1080  
 Facsimile number : +81-3-3241-1043  
 Mail address : el-info@kanto.co.jp  
 Reference No : GE00003 1.2  
 Recommended uses and restrictions : Electronic chemicals

### 2. Hazards identification

#### GHS classification

Physical hazards	Flammable liquids	Category 2
Health hazards	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity	Category 2
	Specific target organ toxicity (single exposure)	Category 1 (central nervous system, systemic toxicity)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (blood)
	Specific target organ toxicity (repeated exposure)	Category 2 (respiratory organs, liver, spleen)

Hazard pictograms



Signal word : Danger

Hazard statements : Highly flammable liquid and vapor  
 Causes serious eye irritation  
 May cause respiratory irritation  
 Suspected of damaging fertility or the unborn child  
 Causes damage to organs (central nervous system, systemic toxicity)  
 Causes damage to organs (blood) through prolonged or repeated exposure  
 May cause damage to organs (respiratory organs, liver, spleen) through prolonged or repeated exposure

Precautionary statements

- Prevention : Do not handle until all safety precautions have been read and understood.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Keep container tightly closed.  
Ground and bond container and receiving equipment.  
Use explosion-proof electrical/ventilating/lighting equipment.  
Use only non-sparking tools.  
Take action to prevent static discharges.  
Do not breathe mist/vapors.  
Wash hands, forearms and face thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/protective clothing/eye protection/face protection.
- Response : IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF exposed or concerned: Call a POISON CENTER or doctor.  
IF exposed or concerned: Get medical advice/attention.  
Call a POISON CENTER or doctor if you feel unwell.  
Get medical advice/attention if you feel unwell.  
If eye irritation persists: Get medical advice/attention.
- Storage : Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.
- Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 3. Composition/information on ingredients

- Distinction of substance or mixture : Substance
- Synonyms : IPA, Isopropanol, Isopropyl alcohol, iso-Propyl alcohol

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
2-Propanol	min. 99.9	(CH <sub>3</sub> ) <sub>2</sub> CHOH	Listed	200-661-7	67-63-0

### 4. First aid measures

#### First aid measures

- First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.
- First-aid measures after skin contact : Wash the affected areas under running water.
- First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
- First-aid measures after : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical



ingestion : attention immediately. If necessary, rinse mouth with water.  
 Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

**Most Important Symptoms/Effects**

Symptoms/effects : Inhalation causes cough, headache, feeling of fatigue, and lethargy.

**5. Fire fighting measures**

Suitable extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, alcohol resistant foam  
 Unsuitable extinguishing media : Foam extinguisher  
 Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.  
 Fight fire from windward.  
 Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Alcohol-resistant foam extinguisher is effective for a large scale fire.  
 Personal protection (Emergency response) : Wear breathing apparatus.

**6. Accidental release measures**

**Personal Precautions, Protective Equipment and Emergency Procedures**

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

**Environmental precautions**

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

**Methods and Equipment for Containment and Cleaning up**

For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.  
 Prevention Measures for Secondary Accidents : Remove nearby sources of ignition and prepare extinguishing media.

**7. Handling and storage**

**Handling**

Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.  
 Ventilate well at working places.  
 Prevent build-up of electrostatic charges (e.g. by grounding) .  
 Precautions for safe handling : Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.  
 Do not allow contact with oxidizing substances.

**Storage**

Storage conditions : Store in a dark, cool place and tightly closed.  
 Material used in : Glass, stainless steel.  
 packaging/containers : Do not use polyvinyl chloride resin, acrylic resin.

**8. Exposure controls / Personal protection equipment**

ACGIH TWA	200 ppm
ACGIH STEL	400 ppm

Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

**Protective equipment**

Respiratory protection : Chemical cartridge respirator with an organic vapor cartage or airline respirator  
 Hand protection : Impervious protective gloves  
 Eye protection : Safety goggles  
 Skin and body protection : Protective clothing, protective boots

**9. Physical and chemical properties**

Physical state : Liquid  
 Color : Colorless.  
 Odor : Aromatic  
 pH : No data available  
 Melting point : -89.5 ° C  
 Freezing point : No data available  
 Boiling point : 82.5 ° C  
 Flash point : 11.7 ° C (C.C.)  
 Auto-ignition temperature : 460 ° C  
 Decomposition temperature : No data available  
 Flammability : Flammable  
 Vapor pressure : 43 hPa (20°C)  
 Relative density : No data available  
 Density : 0.784 - 0.788 g/cm<sup>3</sup> (20°C)  
 Relative gas density : 2.07  
 Solubility : Water: Miscible. Organic solvents: Miscible with ethanol, diethyl ether, chloroform.  
 Partition coefficient n-octanol/water (log Pow) : 0.05  
 Explosive limits (vol %) : 2.02 - 7.99 vol %  
 Viscosity, kinematic: : 2.43 mm<sup>2</sup>/s (20°C)  
 Particle characteristics : No data available

**10. Stability and reactivity**

Reactivity : May react with oxidizing substances.  
 Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : No dangerous reactions known under normal conditions of use.  
 Conditions to avoid : Light, heat.  
 Incompatible materials : Oxidizing substances.  
 Hazardous decomposition products : Carbon monoxide.

## 11. Toxicological information

Acute toxicity (oral) : No classification  
 rat LD50=4384mg/kg  
 Acute toxicity (dermal) : No classification  
 rabbit LD50=12870mg/kg  
 Acute toxicity (inhalation) : No classification (gas)  
 No classification (vapor)  
 Classification not possible (dust, mist)  
 Acute toxicity (vapor) - Description : rat LC50=27908ppm/4h  
 Skin corrosion/irritation : No classification  
 It is reported that there was no or slight irritation in skin irritation tests with rabbits, but it is reported that no irritation was shown in humans in skin application tests in volunteers or for the treatment of alcoholics, therefore it was thought to be minimally or slightly irritating. Therefore, it was classified as "No classification".  
 Serious eye damage/irritation : Causes serious eye irritation  
 Slight to severe irritation is reported in eye irritation tests with rabbits, but severe damage is not described. Therefore, it was classified into category 2A.  
 Respiratory sensitization : Classification not possible  
 Skin sensitization : Classification not possible  
 Germ cell mutagenicity : No classification  
 As for in vivo, negative results are reported in a micronucleus test with mouse bone marrow cells and a chromosomal aberration test with rat bone marrow cells, which are somatic cell mutagenicity tests. As for in vitro, there are no data in a chromosomal aberration test, and it was negative in a bacterial reverse mutation test and an hprt gene mutation test with cultured mammalian cells.  
 Carcinogenicity : No classification  
 IARC classifies it as group 3 (not classifiable as to its carcinogenicity to humans).  
 Reproductive toxicity : Suspected of damaging fertility or the unborn child  
 It is described that in a relatively new two-generation test with rats by oral administration, reduced mating index in paternal animals and lower values of body weights and increased mortality in offspring after birth were found at the dose where parent animals showed general toxicity effects. It is difficult to consider reduced mating index in paternal animals and adverse effects in neonates to be secondary/non-specific effects of general toxicity in parent animals. Furthermore, in a developmental toxicity test in which pregnant rats were orally administered, only slight effects were seen in fetuses, and there were no malformations, but reproductive toxicity effects such as failure of implantation and fully resorbed litters were observed at the dose where maternal toxicity was found. As a result, it was classified into category 2.

- STOT-single exposure : Causes damage to organs (central nervous system, systemic toxicity)  
May cause respiratory irritation  
From descriptions, acute poisoning symptoms of this substance in humans include central nervous system depression (lethargy, coma, respiratory depression, etc.), irritation of the gastrointestinal tract (nausea, vomiting), effects on the circulatory system such as hypotension, hypothermia, and arrhythmia, and adverse effects occur in the whole body. And inhalation exposure irritates the nose and throat (cough, pharyngeal pain), therefore it is irritating to the respiratory tract. From the above, it was classified into category 1 (central nervous system, systemic toxicity), category 3 (respiratory tract irritation).
- STOT-repeated exposure : Causes damage to organs (blood) through prolonged or repeated exposure  
May cause damage to organs (respiratory organs, liver, spleen) through prolonged or repeated exposure  
It is described that in a 4-month inhalation test with rats exposed to the vapour of this substance, a decrease in the white blood cell count was observed at or above 100 mg/m<sup>3</sup>, and pathological effects were found in the respiratory organs, liver, and spleen in the group of 500 mg/m<sup>3</sup>. Therefore, the target organs were judged to be the blood, respiratory system, liver, and spleen, category 1 was given to the blood, and category 2 was assigned for the respiratory system, liver, and spleen.
- Aspiration hazard : Classification not possible

## 12. Ecological information

### Ecotoxicity

- Aquatic acute : No classification  
Oryzias latipes LC50>100mg/L/96h
- Aquatic chronic : No classification  
Daphnia magna NOEC>100mg/L/21-day

### Persistence and degradability

Readily biodegradable  
BOD : 86%

### Bioaccumulative potential

Low bioconcentration  
log Pow : 0.05

### Mobility in soil

High mobility  
Koc : 1.1

### Hazardous to the ozone layer

- Ozone : Classification not possible

## 13. Disposal considerations

- Ecological waste information : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

## 14. Transport information

### International Regulations

#### Transport by sea (IMDG)

UN-No. (IMDG) : 1219  
 Proper Shipping Name (IMDG) : ISOPROPANOL (ISOPROPYL ALCOHOL)  
 Packing group (IMDG) : II  
 Transport hazard class(es) : 3

(IMDG)

#### Air transport (IATA)

UN-No. (IATA) : 1219  
 Proper Shipping Name (IATA) : Isopropanol  
 Packing group (IATA) : II  
 Transport hazard class(es) : 3

(IATA)

Marine pollutant : Not applicable

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollutant category : Z  
 MFAG-No : 129

## 15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

## 16. Other information

Data sources : Solvents Handbook, T, Asahara et al, Kodansha Scientific Ltd. (1976) .  
 Handbook of dangerous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001) .  
 Dangerous Properties of Industrial Materials, 6th ed. N. I. Sax Van Nostrand Reinhold Company (1984) .  
 Handbook of Dangerous Substances Springer-Verlag Tokyo (1991) .  
 Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .  
 NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253.

