

## Safety Data Sheet

### 1. Product and company identification

Product name : 2-Propanol  
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@gms.kanto.co.jp  
SDS No. : GE00003

### 2. Summary of danger and Hazard

#### GHS classification

##### Physical and chemical hazard

Flammable liquids : Category 2  
Pyrophoric liquids : Out of category

##### Human health hazard

Acute toxicity(oral) : Out of category  
Acute toxicity(dermal) : Out of category

Acute toxicity(inhalation:vapors) : Out of category

Skin corrosion/irritation : Out of category

Serious eye damage/eye irritation : Category 2A

Reproductive toxicity : Category 2

Specific target organ systemic toxicity(single exposure) : Category 1 、 Category 3 (respiratory tract irritation)

Specific target organ systemic toxicity(repeated exposure) : Category 1 、 Category 2

##### Environmental hazard

Hazardous to the aquatic environment-acute hazard : Out of category

Hazardous to the aquatic environment-chronic hazard : Out of category

#### Pictogram or symbol



Signal word : Danger

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

Cautions

Safety measurements : Do not handle until all safety precautions have been read and understood.  
Keep away from ignition sources such as heat, sparks, or open flame.  
Keep containers tightly closed.  
Ground container and receiving equipment in case of transport and stirring.  
Use explosion-proof apparatus.  
Use only non-sparking tools.  
Do not breathe dust, mist, and vapor.  
Use only in a well-ventilated area.  
Do not eat, drink or smoke when using this product.  
Wear appropriate protective gloves, glasses, clothing, face shield, or mask.  
Wash hands thoroughly after handling.

First-aid measures : If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical treatment if you feel unwell.  
  
If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.  
If on skin : Remove contaminated clothing and the substance. Get medical treatment, if you feel unwell.  
Wash hands thoroughly after handling.  
If exposed, get medical treatment.  
Get medical treatment, if you feel unwell.

Storage : Tightly container closed and store in a well-ventilated area.  
Store locked up.

Disposal : Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

Substance/Mixture : Substance  
Chemical name or commercial name : 2-Propanol  
Synonyms : Isopropyl alcohol, IPA  
Ingredients and composition : 2-Propanol min. 99.9%  
Chemical formula : (CH<sub>3</sub>)<sub>2</sub>CHOH

CAS No. : 67-63-0  
TSCA Inventory : Registered  
EINECS No. : 2006617  
Dangerous and hazardous ingredients  
: 2-Propanol

#### 4. First aid measures

Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.  
Skin contact : Wash the affected areas under running water.  
Eye contact : Wash the affected areas under running water for at least 15 minutes.  
If necessary, get medical treatment.  
Ingestion : Rinse mouth with water. Give the victim one or two glasses of water or milk. Do not induce vomiting. Get medical treatment as soon as possible.

#### Protection for first aid person

: Rescuers should wear proper protective equipment like rubber gloves, goggles.

#### 5. Fire fighting measures

Extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand

#### Prohibited extinguishing media

: Foam extinguisher

Particular fire fighting : 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.

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.

#### Protection for firefighters

: Wear breathing apparatus.

#### 6. Accidental release measures

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

Cautions for environment : 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.

Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and flush spillage area with copious amounts of water.

#### Prevention of second accident

: Remove nearby sources of ignition and prepare extinguishing media.

#### 7. Cautions of handling and storage

##### Handling

Engineering 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).

Cautions for safety handling

: Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.

Cautions : Do not allow contact with oxidizing substances.

Storage

Adequate storage condition

: Store in a dark, cool place and tightly closed.

Safety adequate container materials

: Glass, fluorine resin, stainless steel

Do not use vinyl chloride resin, acrylic resin, polystyrene etc.

8. Exposure control/Personal protection

Engineering measures : Use with an enclosed system or a local exhaust ventilation.

Control parameters

ACGIH(2015) : 200ppm(TLV-TWA)  
400ppm (TLV-STEL)

Protective equipment

Respiration protective equipment

: Chemical cartridge respirator with an organic vapor cartage or airline respirator

Hands protective equipment

: Impervious protective gloves

Eyes protective equipment

: Safety goggles

Skin and body protective equipment

: Protective clothing, protective boots

9. Physical and chemical properties

Appearance : Liquid

Color : Colorless

Odor : Aromatic odor

Boiling point : 82.4°C

Melting point : -89.5°C

Flash point : 11.7°C

Auto-ignition point : 460°C

Explosion characteristics

Explosion limit : upper : 7.99vol% lower : 2.02vol%

Vapor pressure : 43hPa(20°C)

Vapor density : 2.07

Density : 0.784-0.788g/cm<sup>3</sup> (20°C)

Solubility

Solubility in solvents : Water ; Miscible  
Organic solvents ; Miscible with ethanol, diethyl ether, chloroform.  
log Pow : 0.05  
Other data : Viscosity : 2.43cP(20°C)

10. Stability and reactivity

Stability : Stable under normal conditions.  
Reactivity : May react with oxidizing substances.  
Incompatible conditions : Light, heat  
Incompatible materials : Oxidizing substances  
Hazardous decomposition products  
: Carbon monoxide

11. Toxicological information

Acute toxicity : Oral : Out of category  
Dermal : Out of category  
Inhalation(vapor) : Out of category  
Inhalation(dust, mist) : Not possible to classify because of insufficient data.  
rat oral LD50=4384mg/kg  
rat inhalation LC50=68.5mg/L/4H(vapor)  
rabbit skin LD50=12870mg/kg

Skin corrosion/irritation : Out of category

There is a report about 2-propanol of no irritation or of mild irritation in the tests for rabbit skin irritation. But from the report that irritation was not indicated in the test which was done skin application for the medical treatment of the volunteer and an alcoholism patient in the humans, it was set into out of category.

Serious eye damage/eye irritation

: Causes serious eye irritation(category 2A)

There is the descriptions that there were reports of slight to severe ocular irritant property in the eye irritation test. However, critical damaging property was not indicated, therefore it was classified into category 2A.

Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.

Skin sensitization : Not possible to classify because of insufficient data.

It was negative for skin sensitization test of 2-propanol by the Buehler method in the guinea pig. On the other hand, dermatitis development examples of EHC (1990) who indicated the positive reaction to patch test with 2-propanol also indicated positive reaction to low molecular first class or second class alcohols, and propylene oxide. Since 2-propanol was not clear whether it is a causative agent, it is not possible to classify because of insufficient data.

Mutagenicity : Not possible to classify because of insufficient data.

It is negative in the micronucleus test of 2-propanol which used the mouse bone marrow cells by in vivo.

Carcinogenic effects : Not possible to classify because of insufficient data  
IARC classifies it as group 3(not classifiable as to its carcinogenicity to humans).

Effects on the reproductive system

: Suspected of damaging fertility or the unborn child(category 2)  
No teratogenicity was observed in rats in the growth toxicity and the teratogenicity test of 2-propanol. However, reproductive toxicity, such as decline in a pregnancy rate, an increase in embryo absorption, and an increase in fetus death, were observed at the dose in which a fall of the increasing weight, and toxicity such as an anesthesia action to parental animals were observed.

Specific target organ systemic toxicity single exposure

: Cause damage to organs (central nerve system, systematic toxicity) (category 1)  
May cause respiratory irritation(category 3)  
The substance is including the central nervous suppression as acute poisoning in humans (lethargy, coma, and respiratory depression), irritation to the gastrointestinal tract (nausea, vomiting), blood pressure, body temperature decreased, the impact on the arrhythmia such as the circulatory system, systemically produce adverse effects. Also, causes irritation(cough, throat ache) to noses and throats in humans by inhalation exposure.  
From above results, it was classified into category 1(central nervous system), and category 3(respiratory irritation).

Specific target organ systemic toxicity repeated exposure

: Cause damage to organs (blood) through prolonged or repeated exposure(category 1)  
May cause damage to organs (respiratory organs, liver, spleen) through prolonged or repeated exposure(category 2)  
In 4-months inhalation exposure test of the vapor of the substance to rats, decrease of white blood cell count is observed at 100mg/m<sup>3</sup> (guidance value in terms of concentration: 0.067mg/L/6 hr) or more, from the description that pathological effects were observed in respiratory organs(lung, bronchus), liver, spleen at group of 500mg/m<sup>3</sup> (guidance value in terms of concentration: 0.33mg/L/6 hr), there is the considered that target organs are blood, respiratory organs(lung, bronchus), liver, spleen, it was classified into category 1(blood), category 1(respiratory organs, liver, spleen).

Aspiration hazard : Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity : Acute aquatic toxicity : Out of category  
Chronic aquatic toxicity : Out of category  
Killifish LC50>100mg/L/96H

Persistence and degradability

: High biodegradability  
86% by BOD

Bioaccumulative potential : Not available

Mobility in soil : Koc:1.1

13. Disposal consideration

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

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : Class 3(Flammable liquids) P. G. II

UN number : 1219

Marine regulation information

UN No. : 1219

Proper shipping name : ISOPROPANOL

Class : 3

Sub risk : -

Packing group : II

Marine pollutant : Not applicable

Aviation regulation information

UN No. : 1219

Proper shipping name : Isopropanol

Class : 3

Sub risk : -

Packing group : II

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References 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 16817 Chemical Products, The Chemical Daily Co. (2017)

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, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.