

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

A. Product name: Isopropyl Alcohol

Other means of identification

Synonyms: 2-Propanol

Product No.: 0562, 3031, 3032, 3043, 3590, 3591, 3593, 8288, 9037, 9080, H604, U298, V555, V566, 13483, 33312

B. Recommended use and Limitations on use:

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

C. Details of the supplier of the safety data sheet:

Company Name: Avantor Performance Materials Korea Limited
Address: 201-204, Ace Gwanggyo tower 1, Daehak 4ro 17, Yeongtong-gu, Suwon, Korea 16226

Telephone: 82-31-645-7250

Fax: 82-31-645-7279

Emergency telephone number: CHEMTREC: (82) 070-7686-0086 (24/7)

2. HAZARDS IDENTIFICATION

A. Hazard category/Classification:

Physical Hazards

Flammable liquids Category 2

Health Hazards

Serious Eye Damage/Eye Irritation Category 2

Specific Target Organ Toxicity - Category 3¹

Single Exposure

Aspiration Hazard Category 2

Target Organs

- Narcotic effect.

B. Warning label items including precautionary statement:

Pictograms:



Signal Words: Danger

Hazard Statement(s): H225: Highly flammable liquid and vapor.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.
H305: May be harmful if swallowed and enters airways.

Precautionary Statements:

Prevention: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground and bond container and receiving equipment.
P241: Use explosion-proof [electrical/ventilating/lighting] equipment.
P242: Use non-sparking tools.
P243: Take action to prevent static discharges.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response: P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331: Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTER/doctor if you feel unwell.
P337+P313: If eye irritation persists: Get medical advice/attention.
P308+P311: IF exposed or concerned: Call a POISON CENTER/doctor.
P370+P378: In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction.

Storage: P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P235: Keep cool.
P405: Store locked up.

Disposal: P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

C. Other hazards not included in the hazard category criteria: No data available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical name	Common name and synonyms	CAS number	KECI No.	Content in percent (%)
Isopropyl alcohol	, 2-Propanol	67-63-0	KE-29363	100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

General: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

A. In case of eye contact Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

- B. In case of skin contact:** Wash skin thoroughly with soap and water. Get medical attention if symptoms occur. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.
- C. In case of inhalation:** Move to fresh air. Get medical attention if symptoms persist.
- D. In case of swallowing:** Call a physician or poison control center immediately. Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
- E. Notes to the physician:**
- Hazards:** No data available.
- Symptoms:** Harmful if swallowed. Narcotic effect. Irritating to eyes, respiratory system and skin.
- Treatment:** Treat symptomatically. Symptoms may be delayed.

5. FIRE-FIGHTING MEASURES

- General Fire Hazards:** Flammable liquid and vapor.
- A. Suitable (and unsuitable) extinguishing media:**
- Suitable extinguishing media:** Water spray, foam, dry powder or carbon dioxide.
- Unsuitable extinguishing media:** Avoid water in straight hose stream; will scatter and spread fire.
- B. Special hazards arising from the substance or mixture:** Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard. Heat may cause the containers to explode.
- C. Specific methods of fire-fighting:** Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.
- Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. ACCIDENTAL RELEASE MEASURES

- A. Personal precautions, protective equipment and emergency procedures:** ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid breathing mists or vapors. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.
- B. Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

C. Methods and material for containment and cleaning up:

In case of leakage, eliminate all ignition sources. Use non-sparking tools. Take precautionary measures against static discharges. Stop leak if possible without any risk. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

7. HANDLING AND STORAGE

A. Precautions for safe handling:

Do not handle until all safety precautions have been read and understood. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting] equipment. Use non-sparking tools. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Use only with adequate ventilation. Do not breathe mist or vapor.

B. Conditions for safe storage, including any incompatibilities:

Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

A. Exposure limit values, biological values, etc.:

Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Isopropyl alcohol	STEL	400 ppm	Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors (08 2016)
	TWA	200 ppm	Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors (08 2016)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Isopropyl alcohol (acetone: Sampling time: End of shift at end of work week.)	40 mg/l (Urine)	ACGIH BEI (03 2013)

B. Appropriate engineering controls:

No special requirements under ordinary conditions of use and with adequate ventilation.

C. Personal protective equipment (ppe):

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Chemical respirator with organic vapor cartridge.

Eye Protection:

Wear safety glasses with side shields (or goggles).

Hand Protection:	Chemical resistant gloves
Body protection:	Wear suitable protective clothing.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower. Avoid contact with eyes, skin, and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance:

Physical state:	Liquid
Form:	Liquid
Color:	Colorless

B. Odor:

Alcohol

C. Odor Threshold:

No data available.

D. pH:

No data available.

E. Melting point/freezing point:

-88.5 °C

F. Boiling point, initial boiling point, and boiling range:

82.3 - 82.5 °C

G. Flash Point:

12 °C (Closed Cup)

H. Evaporation Rate:

21 (ether=1) 2.9 (n-butyl acetate=1)

I. Flammability (solid, gas):

Class IB Flammable Liquid

J. Upper/lower limit on flammability or explosive limits:

Flammability Limit - Upper (%):	12 %(V)
Flammability Limit - Lower (%):	2.5 %(V)
Dust Explosion Limit, Upper:	No data available.
Dust Explosion Limit, Lower:	No data available.

K. Vapor pressure:

6.053 kPa (25 °C) 44 hPa (20 °C)

L. Solubility(ies):

Solubility in Water:	Miscible
Solubility (other):	benzene: Soluble chloroform: Miscible

M. Vapor density (air=1):

2.1 (Air=1)

N. Specific Gravity:

0.79 (20 °C)

O. Partition coefficient (n-octanol/water):

0.05

P. Autoignition Temperature:

399 °C

Q. Decomposition Temperature:

No data available.

R. Viscosity:

2.4 mm²/s (20 °C)

S. Molecular weight:

60.10 g/mol (C₃H₈O)

Other information:

Minimum ignition energy:	0.65 mJ
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10. STABILITY AND REACTIVITY

A. Stability and hazardous reaction potential

Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.

- B. Conditions to avoid:** Heat, sparks, flames. Sunlight.
- C. Incompatible Materials:** Strong oxidizing agents. Acids. Isocyanates. Hydrogen peroxide (H₂O₂) Sulfuric acid. Acetaldehyde. Acetylene. Chlorine. Aluminum. Ethylene Oxide
- D. Hazardous Decomposition Products:** Thermal decomposition may release oxides of carbon.

11. TOXICOLOGICAL INFORMATION

A. Information on likely routes of exposure:

- Inhalation:** May cause irritation to the mucous membranes and upper respiratory tract. May cause central nervous system effects.
- Skin Contact:** Prolonged or repeated skin contact may cause drying, cracking, or irritation.
- Eye contact:** Causes serious eye irritation.
- Ingestion:** Irritating. May cause nausea, stomach pain and vomiting.

B. Information on health hazards:

Acute toxicity (list all possible routes of exposure)

Oral

Product: LD 50 (Rat): 5,045 - 5,840 mg/kg

Dermal

Product: LD 50 (Rabbit): 12,800 mg/kg

Inhalation

Product: LC 50 (Rat): > 10000 ppm
LOAEL (Rat): 5000 ppm

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: Prolonged or repeated skin contact may cause drying, cracking, or irritation.

Serious Eye Damage/Eye Irritation

Product: Causes serious eye irritation.

Respiratory or Skin Sensitization

Product: Not a skin nor a respiratory sensitizer.

Carcinogenicity

Product: This substance has no evidence of carcinogenic properties.

ACGIH Carcinogens

No carcinogenic components identified

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: Central nervous system. - Narcotic effect.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Target Organs

Specific Target Organ Toxicity - Single Exposure: Narcotic effect.

Aspiration Hazard

Product: May be harmful if swallowed and enters airways.

Other effects: None known.

12. ECOLOGICAL INFORMATION

A. Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: LC 50 (Western mosquitofish (*Gambusia affinis*), 96 h): > 1,400 mg/l

Aquatic Invertebrates
Product: LC 50 (Water flea (*Daphnia magna*), 24 h): 10,000 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

B. Persistence and Degradability

Biodegradation
Product: Expected to be readily biodegradable.

BOD/COD Ratio
Product: No data available.

C. Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: 0.05

D. Mobility in soil: The product is partly soluble in water. May spread in the aquatic environment.

E. Other adverse effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. DISPOSAL CONSIDERATIONS

A. Method of disposal: Discharge, treatment, or disposal may be subject to national, state, or local laws.

B. Disposal considerations (including disposal of contaminated containers or packaging): No data available.

14. TRANSPORT INFORMATION

IMDG

A.: UN Number:	UN 1219
B.: UN Proper Shipping Name:	ISOPROPANOL
C.: Transport Hazard Class(es)	
Class:	3
Label(s):	3
EmS No.:	F-E, S-D
D.: Packing Group:	II
E.: Marine Pollutant:	No
F.: Special precautions, which a user needs to be aware of, or needs for transportation and transport methods:	None.

IATA

A.: UN Number:	UN 1219
B.: Proper Shipping Name:	Isopropanol
C.: Transport Hazard Class(es)	
Class:	3
Label(s):	3
D.: Packing Group:	II
E.: Marine Pollutant:	No
F.: Special precautions, which a user needs to be aware of, or needs for transportation and transport methods:	None.

15. REGULATORY INFORMATION

A. Restriction under the Industrial Safety and Health Law:

Harmful Substances Prohibited from Manufacturing
None present or none present in regulated quantities.

Harmful Substances Requiring Permission for Manufacture or Use
None present or none present in regulated quantities.

Controlled Hazardous Substances

Chemical name	
Isopropyl alcohol (67-63-0)	Listed

Harmful Substances Requiring Special Medical Examination

Chemical name	
Isopropyl alcohol (67-63-0)	Listed

Harmful Substances Requiring Workplace Environment Monitoring

Chemical name	
Isopropyl alcohol (67-63-0)	Listed

B. Restrictions under the Chemicals Control Law:

Accidental Release Prevention Substances

None present or none present in regulated quantities.

C. Restrictions under the Dangerous Substances Safety Management Act:

Dangerous Substances Safety Management Act

Chemical name	Class	Threshold limit value
Isopropyl alcohol (67-63-0)	Class 4: Flammable liquid.	400 liters

D. Restrictions under the Wastes Control Act:

Halogenated Materials in Waste Organic Solvents

Not Regulated

E. Restrictions under other foreign or domestic laws:

Clean Air Conservation Act

Air Pollutants

Not Regulated

Specific Air Pollutants

Not Regulated

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals

None present or none present in regulated quantities.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not Regulated

Restricted Chemical Substances

None present or none present in regulated quantities.

Toxic Chemicals

None present or none present in regulated quantities.

Inventory Status

AICS	On or in compliance with the inventory
DSL	On or in compliance with the inventory
EU INV	On or in compliance with the inventory
ENCS (JP)	On or in compliance with the inventory

IECSC	On or in compliance with the inventory
KECI (KR)	On or in compliance with the inventory
PICCS (PH)	On or in compliance with the inventory
TSCA	On or in compliance with the inventory
NZIOC	On or in compliance with the inventory
ISHL (JP)	On or in compliance with the inventory
INSQ	On or in compliance with the inventory
TCSI	On or in compliance with the inventory

16. OTHER INFORMATION

A. Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

B. Issue Date: 05/10/2014

C. Number of revisions and date of most recent revision: 4
02/25/2020

D. Other: No data available.

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