



SIGMA-ALDRICH

Material Safety Data Sheet
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Section 1 - Product and Company Information

Product Name: Isopropyl alcohol, USP
Product Number: 19030
Brand: Sigma Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052

Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
ISOPROPANOL, USP	67-63-0	Yes	200-661-7	603-117-00-0

Formula: C₃H₈O
Synonyms: Alcohol isopropilico (Italian), Alcool isopropylique (French), Alcorjel, Alcosolve, Avartin, Avartine, Combi-schutz, Dimethyloctadecyl, Hantosol, 2-Hydroxypropane, Inscel A, Isohol, Isopropanol, Isopropyl alcohol (ACGIH:OSHA), Iso-propylalcohol (German), IPS 1 (alcohol), Lutosol, 1-Methyl ethanol, 1-Methyl ethyl alcohol, Petrosol, PRO, 2-Propanol, i-Propanol (German), n-Propan-2-ol, sec-Propyl alcohol, 2-Propyl alcohol, i-Propylalcohol (German), Spectrat, Sterisol hand disinfectant, Takineocel, Virahol

Section 3 - Hazards Identification

Emergency Overview
Flammable (USA) Highly Flammable (EU). Irritant.
Irritating to eyes and skin.
Target organ(s): Nerves, Kidneys.

HMS Rating
Health: 2* Flammability: 3 Reactivity: 1

NFPA Rating
Health: 2 Flammability: 3 Reactivity: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

Flammable Hazards: Yes

Explosion Hazards
Vapor may travel considerable distance to source of ignition and flash back.
Container explosion may occur under fire conditions.

Flash Point: 53.6 °F 12 °C

Explosion Limits: Lower: 2.5 % Upper: 12 %

Autoignition Temp: 399 °C Flammability: Yes

Extinguishing Media
Suitable
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam

Firefighting
Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s)
Flammable liquid. Emits toxic fumes under fire conditions.
Specific Method(s) of Fire Fighting
Use water spray to cool fire-exposed containers.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill
Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

Procedure(s) of Personal Precaution(s)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Do not breathe vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged or repeated exposure.

Storage

Suitable

Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Handle and store under nitrogen.

Special Requirements

Handle and store under inert gas. Hygroscopic.

Section 8 - Exposure Controls / PPE

Engineering Controls

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

Personal Protective Equipment

Respiratory

Government approved respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

General Hygiene Measures

Remove and wash contaminated clothing promptly. Wash thoroughly after handling.

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGI H	STEL	400 PPM
USA	ACGI H	TWA	200 PPM
USA	MSHA Standard	TWA	400 PPM (980 MG/M3)
USA	OSHA	PEL	8 H TWA 400 PPM (980 MG/M3)
New Zealand	OEL		
Remarks: check ACGI H TLV			
USA	N OSH	TWASTEL	400 PPM 500 PPM

Section 9 - Physical/Chemical Properties

Appearance

Color
Colorless

Form
Clear liquid

Molecular Weight: 60.1 AMU

pH	N/A
BP/ BP Range	81 - 83 °C
MP/ MP Range	-89.5 °C
Freezing Point	N/A
Vapor Pressure	33 mmHg
Vapor Density	2.1 g/l
Saturated Vapor Conc.	N/A
SG Density	0.785 g/cm3
Bulk Density	N/A
Odor Threshold	N/A
Volatile %	N/A
VOC Content	N/A
Water Content	< 0.05 %
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A

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Partition Coefficient	N/A
Decomposition Temp.	N/A
Flash Point °F	53.6 °F
Flash Point °C	12 °C
Explosion Limits	Lower: 2.5 % Upper: 12 %
Flammability	N/A
Aut ignition Temp	399 °C
Refractive Index	1.378
Solubility	N/A

N/A = not available

Method: closed cup
Method: closed cup

Section 10 - Stability and Reactivity

Stability

Stable

Stable

Conditions of Instability

May form peroxides of unknown stability.

Material to Avoid

Oxidizing agents, Acids, Acid anhydrides, Halogens, Aluminum

Hazardous Decomposition Products

Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide.

Hazardous Polymerization

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

Route of Exposure

Skin Contact

Causes skin irritation.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes eye irritation.

Inhalation

May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion

May be harmful if swallowed.

Target Organ(s) or System(s)

Nerves, Kidneys, Cardiovascular system, GI. System. Overexposure may cause mild, reversible effects.

Signs and Symptoms of Exposure

Can cause CNS depression. Prolonged exposure can cause: Nausea, headache, and vomiting. Narcotic effect. Drowsiness. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: NT8050000

Toxicity Data

Oral - Man: 5272 mg/kg (LDLQ)

Remarks: Behavioral: Coma.

Vascular: Blood flow not characterized in autonomic section.

Lungs, Thorax, or Respiration: Chronic pulmonary edema.

Oral - Human: 3570 mg/kg (LDLQ)

Remarks: Behavioral: Coma.

Lungs, Thorax, or Respiration: Respiratory depression.

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Gastrointestinal: Nausea or vomiting.

Oral - Rat: 5045 mg/kg (LD50)

Remarks: Behavioral: Altered sleep time (including change in righting reflex).

Behavioral: Somnolence (general depressed activity).

Inhalation - Rat: 16,000 ppm (LC50)

Intraperitoneal - Rat: 2735 MG/KG (LD50)

Intravenous - Rat: 1088 MG/KG (LD50)

Oral - Mouse: 3600 mg/kg (LD50)

Remarks: Behavioral: Altered sleep time (including change in righting reflex).

Behavioral: Somnolence (general depressed activity).

Intraperitoneal - Mouse: 4477 MG/KG (LD50)

Intravenous - Mouse: 1509 MG/KG (LD50)

Oral - Rabbit: 6410 mg/kg (LD50)

Skin - Rabbit: 12800 mg/kg (LD50)

Intraperitoneal - Rabbit: 667 MG/KG (LD50)

Intravenous - Rabbit: 1184 MG/KG (LD50)

Intraperitoneal - Guinea pig: 2560 MG/KG (LD50)

Intraperitoneal - Hamster: 3444 MG/KG (LD50)

Irritation Data

Skin - Rabbit: 500 mg

Remarks: Mild irritation effect

Eyes - Rabbit: 100 mg

Remarks: Severe irritation effect

Eyes - Rabbit: 10 mg

Remarks: Moderate irritation effect

Eyes - Rabbit: 100 mg 24H

Remarks: Moderate irritation effect

Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGH, NTP, or EPA classification.

IARC Carcinogen List

Rating:
Group 3

Chronic Exposure - Teratogen

Species	Dose	Route of Application	Exposure Time
Rat	8 GM/KG	Oral	(6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Rat	32400 UG/KG	Oral	(26W PRE)
Result: Effects on Embryo or Fetus: Fetal death.			
Rat	3500 PPM/7H	Inhalation	(1-19D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Rat	7000 PPM/7H	Inhalation	(1-19D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.			

Chronic Exposure - Mutagen

Species	Dose	Route	Mutation test
Rat	1030 UG/M3/16W-I	Inhalation	Cytogenetic analysis

Chronic Exposure - Reproductive Hazard

Species	Dose	Route of Application	Exposure Time
Rat	11340 MG/KG	Oral	(45D PRE)
Result: Maternal Effects: Menstrual cycle changes or disorders.			
Rat	5040 MG/KG	Oral	(1-20D PREG)
Result: Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).			
Rat	3500 GM/KG	Oral	(MULTIGENERATION)
Result: Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).			
Rat	10000 PPM/7H	Inhalation	(1-19D PREG)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death.			
Rabbit	6240 MG/KG	Oral	(6-18D PREG)
Result: Maternal Effects: Other effects.			

Section 12 - Ecological Information

Acute Toxicity Tests

Test Type

LC50 Fish

Species

Pimephales promelas (Fathead minnow)

Time: Value:

96.0 h 9,640 mg/l

Test Type

EC50 Daphnia

Species

Daphnia magna

Time: Value:

24.0 h 5,102 mg/l

Test Type

EC50 Algae

Time: Value:

24.0 h > 1,000 mg/l

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Isopropanol [or Isopropyl alcohol]

UN#: 1219

Class: 3

Packing Group: Packing Group II

Hazard Label: Flammable liquid

PIH: Not PIH

IATA

Proper Shipping Name: Isopropanol

IATA UN Number: 1219

Hazard Class: 3

Packing Group: II

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: F Xi

Indication of Danger:

Highly Flammable, Irritant.

Risk Statements R: 11 36 67

Highly flammable. Irritating to eyes. Vapors may cause drowsiness and dizziness.

Safety Statements S: 7 16 24/25 26

Keep container tightly closed. Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

US Classification and Label Text

Indication of Danger:

Flammable (USA) Highly Flammable (EU), Irritant.

Risk Statements

Irritating to eyes and skin.

Safety Statements

Keep container tightly closed. Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

US Statements

Target organ(s): Nerves, Kidneys.

United States Regulatory Information

SARA Listed: Yes

De minimis: 0.1 %

Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D or manufacturing use. Not for household use.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.