

Material Safety Data Sheet

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Version 2.0

According to 91/155/EEC

1 - Product and Company Information

Product Name 2-PROPANOL, 99.9%, PRA GRADE
Product Number 324086

Company Sigma-Aldrich Pte Ltd
#08-01 Citilink Warehouse
Singapore 118529
Singapore

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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
2-PROPANOL	67-63-0	200-661-7	603-117-00-0

Formula C3H8O

Molecular Weight 60.1 AMU

Synonyms Alcool isopropilico (Italian) * Alcool
isopropylique (French) * Alcojel * Alcosolve *
Avantin * Avantine * Combi-schutz *
Dimethylcarbinol * Hartosol * 2-Hydroxypropane *
Imsol A * Isohol * Isopropanol * Isopropyl
alcohol (ACGIH:OSHA) * Iso-propylalcohol
(German) * IPS 1 (alcohol) * Lutosol *
1-Methylethanol * 1-Methylethyl alcohol *
Petrohol * PRO * 2-Propanol * i-Propanol
(German) * n-Propan-2-ol * sec-Propyl alcohol *
2-Propyl alcohol * i-Propylalkohol (German) *
Spectrar * Sterisol hand disinfectant *
Takineocol * Virahol * isopropanol

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

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

4 - First Aid Measures

AFTER INHALATION

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

AFTER SKIN CONTACT

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

AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts

of water for at least 15 minutes.

AFTER INGESTION

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

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

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

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SPECIFIC METHOD(S) OF FIRE FIGHTING

Use water spray to cool fire-exposed containers.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES 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.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: 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.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

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

Flammability	N/A	
Autoignition Temp	399 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2.5 %	
	Upper: 12 %	
Vapor Pressure	33 mmHg	20 °C
SG/Density	0.785 g/cm3	
Partition Coefficient	Log Kow: 0.05	
Viscosity	2.27 Pas	20 °C
Vapor Density	2.1 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	3	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	0.003 %	
Surface Tension	20,800 mN/m	25 °C
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Complete	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May form peroxides of unknown stability.

Materials 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

11 - Toxicological Information

RTECS NUMBER: NT8050000

ACUTE TOXICITY

LDLO

Oral

Man

5272 mg/kg

Remarks: Behavioral:Coma. Vascular:BP lowering not characterized in autonomic section. Lungs, Thorax, or Respiration:Chronic pulmonary edema.

LDLO

Oral

Human

3570 mg/kg

Remarks: Behavioral:Coma. Lungs, Thorax, or Respiration:Respiratory depression. Gastrointestinal:Nausea or vomiting.

LD50

Oral

Rat

5045 mg/kg

Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity).

LC50
Inhalation
Rat
16,000 ppm
8H

LD50
Intraperitoneal
Rat
2735 MG/KG

LD50
Intravenous
Rat
1088 MG/KG

LD50
Oral
Mouse
3600 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity).

LD50
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

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

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.

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 INFORMATION

Nerves. Kidneys. Cardiovascular system. G.I. System.
Overexposure may cause mild, reversible liver effects.

CHRONIC EXPOSURE - CARCINOGEN

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

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - MUTAGEN

Rat
1030 UG/M3/16W-I
Inhalation
Cytogenetic analysis

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 8 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Rat
Dose: 32400 UG/KG
Route of Application: Oral
Exposure Time: (26W PRE)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Rat
Dose: 3500 PPM/7H
Route of Application: Inhalation
Exposure Time: (1-19D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Rat
Dose: 7000 PPM/7H
Route of Application: Inhalation
Exposure Time: (1-19D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 11340 MG/KG
Route of Application: Oral
Exposure Time: (45D PRE)
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Rat
Dose: 5040 MG/KG
Route of Application: Oral
Exposure Time: (1-20D PREG)
Result: Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Species: Rat
Dose: 3500 GM/KG
Route of Application: Oral
Exposure Time: (MULTIGENERATION)
Result: Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).

Species: Rat
Dose: 10000 PPM/7H
Route of Application: Inhalation
Exposure Time: (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.

Species: Rabbit
Dose: 6240 MG/KG
Route of Application: Oral
Exposure Time: (6-18D PREG)
Result: Maternal Effects: Other effects.

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 9,640 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 5,102 mg/l

Test Type: EC50 Algae
Species: Scenedesmus subspicatus
Time: 72 h
Value: > 2,000 mg/l

Test Type: EC50 Algae
Time: 24 h
Value: > 1,000 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

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.

14 - Transport Information

RID/ADR

UN#: 1219
Class: 3
PG: II
Proper Shipping Name: Isopropanol

IMDG

UN#: 1219
Class: 3
PG: II
Proper Shipping Name: Isopropanol
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1219
Class: 3
PG: II
Proper Shipping Name: Isopropanol
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 603-117-00-0

NOTA: C

INDICATION OF DANGER: F Xi

Highly Flammable. Irritant.

R-PHRASES: 11 36 67

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

S-PHRASES: 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.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

SWITZERLAND

SWISS POISON CLASS: FREI

NORWAY

Labelling for organic solvents where the package is 1 liter or more.

YL-tall m3/l: 4514

YL-group: 5

Risk phrases: 20

Harmful by inhalation.

Safety phrases: 38 42 210

In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

16 - Other Information

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.

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