

## Material Safety Data Sheet

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Version 2.0

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

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1 - Product and Company Information

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Product Name	2-PROPANOL, REAGENTPLUSTM, >=99%
Product Number	320471
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
Fax	+61 2 9841 0500
Emergency Phone #	+61 2 9841 0566

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2 - Composition/Information on Ingredients

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

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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-propylalkohol (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

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3 - Hazards Identification

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## SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

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

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4 - First Aid Measures

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## 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.

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### 5 - Fire Fighting Measures

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#### 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.

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### 6 - Accidental Release Measures

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#### 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.

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### 7 - Handling and Storage

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#### 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.

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### 8 - Exposure Controls / Personal Protection

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#### ENGINEERING CONTROLS

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

#### GENERAL HYGIENE MEASURES

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

#### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	900 MG/M3
Poland		NDSCh	1200 MG/M3
Poland		NDSP	-

#### EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	490 mg/m3
		200 ppm

Remarks: H

#### EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	500 mg/m3

Remarks: 4

Remarks: Y

#### EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	245 mg/m3
		100 ppm

#### EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level	350 mg/m3
		150 ppm

#### EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	490 mg/m3
		200 ppm

Remarks: C M

#### EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	999 mg/m3
		40 ppm
OEL	STEL	1,250 mg/m3
		500 ppm

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

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### 9 - Physical and Chemical Properties

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Appearance	Physical State: Liquid
	Color: Colorless

Property	Value	At Temperature or Pressure
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pH	N/A	
BP/BP Range	81 - 83 °C	
MP/MP Range	-89.5 °C	
Flash Point	12 °C	Method: closed cup
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	

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## 10 - Stability and Reactivity

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### 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

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## 11 - Toxicological Information

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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.

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## 12 - Ecological Information

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### 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

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## 13 - Disposal Considerations

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### 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.

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## 14 - Transport Information

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### 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

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## 15 - Regulatory Information

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### 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 1liter 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.

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## 16 - Other Information

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### 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 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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