SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: 2-Propanol
Product Number: 34965
Brand: Sigma-Aldrich
Index-No.: 603-117-00-0
CAS-No.: 67-63-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24
Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

- Flammable liquids (Category 2), H225
- Eye irritation (Category 2A), H319
- Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram: 

Signal word: Danger
Hazard statement(s)
- H225 Highly flammable liquid and vapor.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.

Precautionary statement(s)
- P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER/ doctor if you feel unwell.
- P337 + P313 If eye irritation persists: Get medical advice/ attention.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
May form explosive peroxides.

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms:
- sec-Propyl alcohol
- Isopropyl alcohol
- Isopropanol

Formula: \( \text{C}_3\text{H}_8\text{O} \)
Molecular weight: 60.10 g/mol
CAS-No.: 67-63-0
EC-No.: 200-661-7
Index-No.: 603-117-00-0

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**2-Propanol**

| Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336 | <= 100 % |

Concentration limits:

>= 20 %: STOT SE 3, H336;

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures**

**4.1 Description of first-aid measures**

**General advice**
Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**
No data available

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**
Carbon oxides

**5.3 Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**
Use water spray to cool unopened containers.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Advice on protection against fire and explosion
Use explosion-proof equipment. Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Handle and store under inert gas. hygroscopic

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with workplace control parameters
### Component Parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>TWA</td>
<td>200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>400 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST</td>
<td>500 ppm 1,225 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>400 ppm 980 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>400 ppm 980 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>500 ppm 1,225 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>400 ppm 980 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>400 ppm 980 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>500 ppm 1,225 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>Acetone</td>
<td>40 mg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

**Remarks**
End of shift at end of workweek

### Predicted No Effect Concentration (PNEC)

<table>
<thead>
<tr>
<th>Compartiment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil</td>
<td>28 mg/kg</td>
</tr>
<tr>
<td>Sea water</td>
<td>140.9 mg/l</td>
</tr>
<tr>
<td>Fresh water</td>
<td>140.9 mg/l</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>552 mg/kg</td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>552 mg/kg</td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
- Material: Nitrile rubber
- Minimum layer thickness: 0.4 mm
- Break through time: 480 min
- Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
- Material: Nitrile rubber
- Minimum layer thickness: 0.2 mm
- Break through time: 60 min
- Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   - Form: liquid
   - Color: colorless

b) Odor
   - alcohol-like

c) Odor Threshold
   - No data available
d) pH  
No data available

e) Melting point/freezing point  
Melting point/range: -89.5 °C (-129.1 °F)

f) Initial boiling point and boiling range  
82 °C 180 °F

g) Flash point  
12.0 °C (53.6 °F) - closed cup

h) Evaporation rate  
3.0

i) Flammability (solid, gas)  
No data available

j) Upper/lower flammability or explosive limits  
Upper explosion limit: 12.7 % (V)  
Lower explosion limit: 2 % (V)

k) Vapor pressure  
43.2 hPa at 20.0 °C (68.0 °F)  
58.7 hPa at 25.0 °C (77.0 °F)

l) Vapor density  
No data available

m) Density  
0.785 g/mL at 25 °C (77 °F)  
Relative density  
No data available

n) Water solubility  
completely soluble

o) Partition coefficient: n-octanol/water  
log Pow: 0.05

p) Autoignition temperature  
425.0 °C (797.0 °F)

q) Decomposition temperature  
No data available

r) Viscosity  
No data available

s) Explosive properties  
No data available

t) Oxidizing properties  
No data available

9.2 Other safety information

Surface tension  
20.8 mN/m at 25.0 °C (77.0 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity  
No data available

10.2 Chemical stability  
Reacted with air to form peroxides.  
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.  
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapors may form explosive mixture with air.
10.4 **Conditions to avoid**
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 **Incompatible materials**
Oxidizing agents, Acid anhydrides, Aluminum, Halogenated compounds, Acids

10.6 **Hazardous decomposition products**
In the event of fire: see section 5

### SECTION 11: Toxicological information

11.1 **Information on toxicological effects**

**Acute toxicity**
- LD50 Oral - Rat - 5,840 mg/kg
  (OECD Test Guideline 401)
- LC50 Inhalation - Rat - male and female - 4 h - 37.5 mg/l
  (OECD Test Guideline 403)
- LD50 Dermal - Rabbit - 12,800 mg/kg
  Remarks: (RTECS)
  No data available

**Skin corrosion/irritation**
- Skin - Rabbit
  Result: No skin irritation - 4 h
  (OECD Test Guideline 404)

**Serious eye damage/eye irritation**
- Eyes - Rabbit
  Result: Eye irritation
  (OECD Test Guideline 405)
  (Regulation (EC) No 1272/2008, Annex VI)

**Respiratory or skin sensitization**
- Buehler Test - Guinea pig
  Result: negative
  (OECD Test Guideline 406)

**Germ cell mutagenicity**
- Test Type: Ames test
  Test system: Salmonella typhimurium
  Metabolic activation: with and without metabolic activation
  Method: OECD Test Guideline 471
  Result: negative
  Test Type: In vitro mammalian cell gene mutation test
  Test system: Chinese hamster ovary cells
  Metabolic activation: with and without metabolic activation
  Method: OECD Test Guideline 476
  Result: negative

  Test Type: In vivo micronucleus test
  Species: Mouse
  Cell type: Bone marrow
  Application Route: Intraperitoneal injection
  Method: OECD Test Guideline 474
Result: negative

**Carcinogenicity**
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: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
Inhalation, Oral - May cause drowsiness or dizziness. - Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 Additional Information

RTECS: NT8050000
Central nervous system depression, prolonged or repeated exposure can cause:, Nausea, Headache, Vomiting, narcosis, Drowsiness, Overexposure may cause mild, reversible liver effects., Aspiration may lead to:, Lung edema, Pneumonia
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Dizziness
Inebriation
Unconsciousness
Narcosis

After uptake of large quantities:

Coma

Handle in accordance with good industrial hygiene and safety practice.

Kidney - Irregularities - Based on Human Evidence

Kidney - Irregularities - Based on Human Evidence
SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
flow-through test LC50 - Pimephales promelas (fathead minnow) - 9,640 mg/l - 96 h 
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 13,299 mg/l - 48 h
Remarks: (IUCLID)

Toxicity to algae
IC50 - Desmodesmus subspicatus (green algae) - > 1,000 mg/l - 72 h 
Remarks: (IUCLID)

Toxicity to bacteria
EC5 - Pseudomonas putida - 1,050 mg/l - 16 h 
Remarks: (Lit.)

12.2 Persistence and degradability

Biodegradability
aerobic - Exposure time 5 d 
Result: 53 % - Readily biodegradable. 

Theoretical oxygen demand 2,400 mg/g
Remarks: (Lit.)

Ratio BOD/ThBOD 49 %
Remarks: (IUCLID)

12.3 Bioaccumulative potential
No bioaccumulation is to be expected (log Pow <= 4).

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.
SECTION 14: Transport information

**DOT (US)**
UN number: 1219  Class: 3  Packing group: II
Proper shipping name: Isopropanol
Reportable Quantity (RQ): Poison Inhalation Hazard: No

**IMDG**
UN number: 1219  Class: 3  Packing group: II  EMS-No: F-E, S-D
Proper shipping name: ISOPROPANOL

**IATA**
UN number: 1219  Class: 3  Packing group: II
Proper shipping name: Isopropanol

SECTION 15: Regulatory information

**SARA 302 Components**
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
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**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

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**Pennsylvania Right To Know Components**

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**New Jersey Right To Know Components**

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</table>

**California Prop. 65 Components**
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.
SECTION 16: Other information

Further information
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Version: 6.4 Revision Date: 09/13/2021 Print Date: 10/18/2022