SAFETY DATA SHEET

1. Identification

Product Name Isopropanol
Cat No. AC149320000; AC149320010; AC149320025; AC149320050; AC149320100; AC149320250
CAS No. 67-63-0
Synonyms 2-Propanol; IPA; Isopropyl alcohol; Propan-2-ol; Isopropanol
Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US:001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No.US:001-800-424-9300 / Europe:001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Target Organs - Respiratory system, Central nervous system (CNS),</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity - (repeated exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Target Organs - Kidney, Liver.</td>
<td></td>
</tr>
</tbody>
</table>

Label Elements

Signal Word Danger

Hazard Statements

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Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool

Response
Get medical attention/advice if you feel unwell

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Fire
In case of fire: Use CO2, dry chemical, or foam for extinction

Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Isopropanol

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Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

Inhalation Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.

Ingestion Do NOT induce vomiting. Get medical attention.

Most important symptoms and effects Difficulty in breathing. May cause central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point 12 °C / 53.6 °F

Method - Abel Closed Cup (BS 2000 Part 170, IP 170, AS/NZS 2106)

Autoignition Temperature 425 °C / 797 °F

Explosion Limits

| Upper | 12 vol % |
| Lower | 2 vol % |

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.


Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing.

Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Keep in suitable, closed containers for disposal.

7. Handling and storage
Handling

Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage.


8. Exposure controls / personal protection

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>TWA: 200 ppm</td>
<td>(Vacated) TWA: 400 ppm</td>
<td>IDLH: 2000 ppm</td>
<td>TWA: 200 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 400 ppm</td>
<td>(Vacated) STEL: 980 mg/m³</td>
<td>TWA: 400 ppm</td>
<td>STEL: 400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Vacated) STEL: 500 ppm</td>
<td>TWA: 980 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Vacated) STEL: 1225 mg/m³</td>
<td>TWA: 400 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL: 500 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL: 1225 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Alcohol-like</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>7.0 - 1% aq. sol</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-89.5 °C / -129.1 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>81 - 83 °C / 177.8 - 181.4 °F @ 760 mmHg</td>
</tr>
<tr>
<td>Flash Point Method</td>
<td>Abel Closed Cup (BS 2000 Part 170, IP 170, AS/NZS 2106)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>1.7</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>12 vol %</td>
</tr>
</tbody>
</table>
Isopropanol

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Lower
2 vol %

Vapor Pressure
43 mmHg @ 20 °C

Vapor Density
2.1 @ 20 °C / 68 °F

Specific Gravity
0.785

Solubility
Miscible with water

Partition coefficient; n-octanol/water
No data available

Autoignition Temperature
425 °C / 797 °F

Decomposition Temperature
No information available

Viscosity
2.27 mPa.s at 20 °C

Molecular Formula
C3 H8 O

Molecular Weight
60.1

VOC Content(%)
100% (Organic Carbon (by mass) = 59.9 %) (EC/1999/13)

Refractive index
1.377 at 20 °C / 68 °F (ASTM D-1218)

Surface tension
22.7 mN/m at 20 °C / 68 °F

Coefficient of expansion
0.0009 / °C

Dielectric constant
18.6 at 20 °C / 68 °F

Heat of vapourisation
665 J/g

Specific heat capacity
3 kJ/kg °C at 20 °C / 68 °F

Thermal conductivity
0.137 W/m °C at 20 °C / 68 °F

10. Stability and reactivity

Reactive Hazard
None known, based on information available

Stability
Stable under normal conditions.

Conditions to Avoid
Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials
Strong oxidizing agents, Acids, Halogens, Acid anhydrides

Hazardous Decomposition Products
Carbon monoxide (CO), Carbon dioxide (CO2), peroxides

Hazardous Polymerization
Hazardous polymerization does not occur.

11. Toxicological information

Acute Toxicity
Product Information
Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>5045 mg/kg (Rat)</td>
<td>12800 mg/kg (Rat)</td>
<td>72.6 mg/L (Rat) 4 h</td>
</tr>
<tr>
<td></td>
<td>3600 mg/kg (Mouse)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products
No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation
Irritating to eyes and skin

Sensitization
No information available

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects
No information available

Reproductive Effects
No information available.
Developmental Effects
No information available.

Teratogenicity
No information available.

STOT - single exposure
Respiratory system Central nervous system (CNS)

STOT - repeated exposure
Kidney Liver

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
May cause central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

### 12. Ecological information

**Ecotoxicity**
- Do not empty into drains.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td><strong>EC50: &gt; 1000 mg/L, 96h (Desmodesmus subspicatus)</strong></td>
<td><strong>LC50: = 9640 mg/L, 96h flow-through (Pimephales promelas)</strong></td>
<td>= 35390 mg/L EC50 Photobacterium phosphoreum 5 min</td>
<td>= 13299 mg/L EC50 = 48 h 9714 mg/L EC50 = 24 h</td>
</tr>
<tr>
<td></td>
<td><strong>EC50: &gt; 1000 mg/L, 72h (Desmodesmus subspicatus)</strong></td>
<td><strong>LC50: &gt; 1400000 µg/L, 96h (Lepomia macrochirus)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LC50: = 11130 mg/L, 96h static (Pimephales promelas)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LC50: = 10000000 µg/L, 96h (Daphnia)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>= 35390 mg/L EC50 Photobacterium phosphoreum 5 min</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>= 13299 mg/L EC50 = 48 h 9714 mg/L EC50 = 24 h</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Persistence and Degradability**
Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation**
No information available.

**Mobility**
Will likely be mobile in the environment due to its volatility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>0.05</td>
</tr>
</tbody>
</table>

### 13. Disposal considerations

**Waste Disposal Methods**
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport information

**DOT**
- **UN-No** UN1219
- **Proper Shipping Name** Isopropanol
- **Hazard Class** 3
- **Packing Group** II

**TDG**
- **UN-No** UN1219
- **Proper Shipping Name** ISOpropanOL
- **Hazard Class** 3
- **Packing Group** II

**IATA**
- **UN-No** UN1219
Isopropanol

Proper Shipping Name: Isopropanol
Hazard Class: 3
Packing Group: II

IMDG/IMO
UN-No: UN1219
Proper Shipping Name: Isopropanol (Isopropyl alcohol)
Hazard Class: 3
Packing Group: II

15. Regulatory information

United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active-Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>X</td>
<td>ACTIVE</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
‘-’ - Not Listed

TSCA 12(b) - Notices of Export: Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>DSL</th>
<th>NDNL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>ISHL</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>X</td>
<td>-</td>
<td>200-661-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-29363</td>
<td></td>
</tr>
</tbody>
</table>

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>&gt;95</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

See section 2 for more information

CWA (Clean Water Act)
Not applicable

Clean Air Act
Not applicable

OSHA - Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations
Mexico - Grade Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>-</td>
<td>Use restricted. See item 75. (see link for restriction details)</td>
<td>-</td>
</tr>
</tbody>
</table>


Safety, health and environmental regulations/legislation specific for the substance or mixture

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>OECD HPV</th>
<th>Persistent Organic Pollutant</th>
<th>Ozone Depletion Potential</th>
<th>Restriction of Hazardous Substances (RoHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>Listed</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Annex I - Y42</td>
</tr>
</tbody>
</table>

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-Sep-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS