SAFETY DATA SHEET

1. Identification

Product Name: 2-Propanol

Cat No.: A426F-1GAL; A426P-4; A426S-4; A426S-20; A426S-200

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

Importer/Distributor: Fisher Scientific

112 Colonnade Road.

Ottawa, ON K2E 7L6,

Canada

Tel: 1-800-234-7437

Manufacturer: Fisher Scientific Company

One Reagent Lane

Fair Lawn, NJ 07410

Tel: (201) 796-7100

Emergency Telephone Number: CHEMTREC®, Inside the USA: 800-424-9300

CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

WHMIS 2015 Classification: Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

- Flammable liquids - Category 2
- Serious Eye Damage/Eye Irritation - Category 2
- Specific target organ toxicity (single exposure) - Category 3
  - Target Organs - Respiratory system, Central nervous system (CNS).
- Specific target organ toxicity - (repeated exposure) - Category 2
  - Target Organs - Kidney, Liver.

Label Elements

Signal Word: Danger

Hazard Statements

- Highly flammable liquid and vapor
- Causes serious eye irritation
May cause respiratory irritation
May cause drowsiness and dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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 discharges
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Response
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Call a POISON CENTER/ doctor if you feel unwell
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
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

### 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.

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/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.
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 %

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.

Hazardous Combustion Products

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.

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.

8. Exposure controls / personal protection

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario TWAEV</th>
<th>Quebec</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA: 492 mg/m³</td>
<td>STEL: 400 ppm</td>
<td>TWA: 500 ppm</td>
<td>TWA: 400 ppm</td>
<td>TWA: 985 mg/m³</td>
<td>TWA: 980 mg/m³</td>
<td>TWA: 980 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 984 mg/m³</td>
<td>STEL: 400 ppm</td>
<td>TWA: 1230 mg/m³</td>
<td>STEL: 400 ppm</td>
<td>TWA: STEL: 500 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 400 ppm</td>
<td>TWA: 1225 mg/m³</td>
<td>STEL: 400 ppm</td>
<td>TWA: 980 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 400 ppm</td>
<td>TWA: 980 mg/m³</td>
<td></td>
<td>TWA: 980 mg/m³</td>
<td></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. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection
Goggles

Hand Protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl rubber</td>
<td>&gt; 480 minutes</td>
<td>0.5 mm</td>
<td>Permeation rate &lt; 0.9 µg/cm²/min</td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td>&gt; 360 - 480 minutes</td>
<td>0.35 - 0.55 mm</td>
<td>As tested under EN374-3</td>
</tr>
</tbody>
</table>

Inspect gloves before use, observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.
9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<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 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</td>
<td>12 °C / 53.6 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Abel Closed Cup (BS 2000 Part 170, IP 170, AS/NZS 2106)</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>12 vol %</td>
</tr>
<tr>
<td>Lower</td>
<td>2 vol %</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>43 mmHg @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>2.1 @ 20 °C / 68 °F</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.785</td>
</tr>
<tr>
<td>Solubility</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>425 °C / 797 °F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>2.27 mPa.s at 20 °C</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C3 H8 O</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>60.1</td>
</tr>
<tr>
<td>VOC Content(%)</td>
<td>100% (Organic Carbon (by mass) = 59.9 %) (EC/1999/13)</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.377 at 20 °C / 68 °F (ASTM D-1218)</td>
</tr>
<tr>
<td>Surface tension</td>
<td>22.7 mN/m at 20 °C / 68 °F</td>
</tr>
<tr>
<td>Coefficient of expansion</td>
<td>0.0009 °C</td>
</tr>
<tr>
<td>Dielectric constant</td>
<td>18.6 at 20 °C / 68 °F</td>
</tr>
<tr>
<td>Heat of vapourisation</td>
<td>665 J/g</td>
</tr>
<tr>
<td>Specific heat capacity</td>
<td>3 kJ/kg °C at 20 °C / 68 °F</td>
</tr>
<tr>
<td>Thermal conductivity</td>
<td>0.137 W/m °C at 20 °C / 68 °F</td>
</tr>
</tbody>
</table>

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.

Hazardous Reactions

None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

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

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 list 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>EC50: &gt; 1000 mg/L, 96h (Desmodesmus subspicatus)</td>
<td>LC50: = 9640 mg/L, 96h flow-through (Pimephales promelas)</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>EC50: &gt; 1000 mg/L, 72h (Desmodesmus subspicatus)</td>
<td>LC50: &gt; 1400000 µg/L, 96h (Lepomis macrochirus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: = 11130 mg/L, 96h static (Pimephales promelas)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: = 1000000 µg/L, 96h (Daphnia)</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
- 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

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>DSL</th>
<th>NDSL</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active-Inactive</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>ACTIVE</td>
<td>200-661-7</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend:
- X - Listed
- '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
ENC - Japanese Existing and New Chemical Substances
TCSI - Australian Inventory of Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

<table>
<thead>
<tr>
<th>Component</th>
<th>Canada - National Pollutant Release Inventory (NPRI)</th>
<th>Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances</th>
<th>Canada's Chemicals Management Plan (CEPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>Part 1, Group A Substance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part 5, Individual Substances Part 4 Substance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other International Regulations

Authorisation/Restrictions according to EU REACH
### 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>
<th></th>
<th></th>
<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-September-2009  
**Revision Date** 24-December-2021  
**Print Date** 24-December-2021  
**Revision Summary** This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

**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