1. Identification

Product Name: Isopropyl alcohol, 70% in water

Cat No.: A459-1; A459-20; A459-4; A459-500; XXA459N119; A459-200; XXA45910LI; NC1883130; NC1321602; NC2070308; NC2401443

Synonyms: IPA; Isopropanol (70% aqueous solution)

Recommended Use: Laboratory chemicals.
Uses advised against: Food, drug, pesticide or biocidal product use.

2. Hazard(s) Identification

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

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

Label Elements

Signal Word: Danger

Hazard Statements:
- Highly flammable liquid and vapor
- Causes serious eye irritation
- May cause drowsiness or dizziness
Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing 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
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>64.7</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>35.3</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
If symptoms persist, call a physician.

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 soap and plenty of water. If skin irritation persists, call a physician.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects
Difficulty in breathing. 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
18 °C / 64.4 °F

Method -
No information available

Autoignition Temperature
399 °C / 750.2 °F

Explosion Limits
<table>
<thead>
<tr>
<th>Upper</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.7 vol %</td>
<td>2.0 vol %</td>
</tr>
</tbody>
</table>

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. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO₂). peroxides.

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.

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. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

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

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

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

Storage.
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing

8. Exposure controls / personal protection

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</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>TWA: 980 mg/m³</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: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

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

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

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type:

Organic gases and vapours filter. Type A. Brown. conforming to EN14387.

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>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-88 °C / -126.4 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>82 °C / 179.6 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>18 °C / 64.4 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>1.7 (Butyl Acetate = 1.0)</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>12.7 vol %</td>
</tr>
<tr>
<td>Lower</td>
<td>2.0 vol %</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>20 mmHg @ 332°C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>2.1 (Air = 1.0)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.7850</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>
</tbody>
</table>
Isopropyl alcohol, 70% in water

Revision Date 13-Oct-2023

Autoignition Temperature 399 °C / 750.2 °F
Decomposition Temperature No information available
Viscosity No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available
Stability Stable under normal conditions.
Conditions to Avoid Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials Strong oxidizing agents, Strong acids, Metals
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
Oral LD₅₀ Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD₅₀ Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC₅₀ Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD₅₀ Oral Oral (Rat)</th>
<th>LD₅₀ Dermal Oral (Rat)</th>
<th>LC₅₀ Inhalation (Rat) 4 h</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>Water</td>
<td>-</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 Severe eye irritant
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>
<tr>
<td>Water</td>
<td>7732-18-5</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 Central nervous system (CNS)
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and Inhalation of high vapor concentrations may cause symptoms like headache, dizziness,
delayed
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

<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, 72h (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></td>
<td>LC50: &gt; 1400000 µg/L, 96h (Lepomis macrochirus)</td>
<td>LC50: = 11130 mg/L, 96h static (Pimephales promelas)</td>
<td>LC50: = 10000000 µg/L, 96h (Daphnia)</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

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1219</td>
<td>ISOPROPANOL</td>
<td>3</td>
<td>II</td>
</tr>
</tbody>
</table>

TDG

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1219</td>
<td>ISOPROPANOL</td>
<td>3</td>
<td>II</td>
</tr>
</tbody>
</table>

IATA

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1219</td>
<td>ISOPROPANOL</td>
<td>3</td>
<td>II</td>
</tr>
</tbody>
</table>

IMDG/IMO

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1219</td>
<td>ISOPROPANOL</td>
<td>3</td>
<td>II</td>
</tr>
</tbody>
</table>

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>
<tr>
<td>Water</td>
<td>7732-18-5</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 - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)**

- Not applicable

**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>NDSL</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>X</td>
<td>KE-29363</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>X</td>
<td>-</td>
<td>231-791-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-35400</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>64.7</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>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### U.S. Department of Transportation

- Reportable Quantity (RQ): N
- DOT Marine Pollutant: N
- DOT Severe Marine Pollutant: N
Isopropyl alcohol, 70% in water

Revision Date 13-Oct-2023

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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>Use restricted. See item 75. (see link for restriction details)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

REACH links


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>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Listed</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Contains component(s) that meet a ‘definition’ of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

<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>Annex I - Y42</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

16. Other information

Prepared By

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

Creation Date 28-Jan-2010
Revision Date 13-Oct-2023
Print Date 13-Oct-2023
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