1. Identification

Product Name: 2-Methyl-1-propanol

Cat No.: A397-1; A397-4

Synonyms: Isobutanol; Isobutyl alcohol

Recommended Use: Laboratory chemicals.

Uses advised against: No Information available

Details of the supplier of the safety data sheet

Company: Fisher Scientific
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

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

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids</td>
<td>Category 3</td>
</tr>
<tr>
<td>Skin Corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 1</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>
</tbody>
</table>

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor
Causes skin irritation
Causes serious eye damage
May cause respiratory irritation
May cause drowsiness or dizziness
Precautionary Statements

**Prevention**
- Wash face, hands and any exposed skin thoroughly after handling.
- Wear protective gloves/protective clothing/eye protection/face protection.
- 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.
- 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 skin irritation occurs: Get medical advice/attention.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Wash contaminated clothing before reuse.

**Eyes**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor/physician.

**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>Isobutyl alcohol</td>
<td>78-83-1</td>
<td>99</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. Immediate medical attention is required.

**Skin Contact**
- Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**
- Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

**Ingestion**
- Do not induce vomiting. Obtain medical attention.

**Most important symptoms/effects**
- Breathing difficulties. Causes eye burns. Symptoms of overexposure may be 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. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media  
Water may be ineffective

Flash Point  
28 °C / 82.4 °F

Method -  
No information available

Autoignition Temperature  
430 °C / 806 °F

Explosion Limits  
Upper 10.9 vol %
Lower 1.6 vol %

Oxidizing Properties  
Not oxidising

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.

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

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. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing.

Environmental Precautions
Avoid release to the environment. See Section 12 for additional ecological Information.

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

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Use spark-proof tools and explosion-proof equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

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>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutyl alcohol</td>
<td>TWA: 50 ppm</td>
<td>(Vacated) TWA: 50 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Vacated) TWA: 150 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 100 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 300 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDLH: 1600 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 50 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 150 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
</table>
2-Methyl-1-propanol

<table>
<thead>
<tr>
<th>Isobutyl alcohol</th>
<th>TWA: 50 ppm</th>
<th>TWA: 50 ppm</th>
<th>TWA: 50 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-83-1 (99)</td>
<td>TWA: 152 mg/m³</td>
<td>TWA: 150 mg/m³</td>
<td>STEL: 75 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 225 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or 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.

**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>aromatic</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>-108 °C / -162.4 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>108 °C / 226.4 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>28 °C / 82.4 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>0.6</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>10.9 vol %</td>
</tr>
<tr>
<td>Lower</td>
<td>1.6 vol %</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>11.7 mbar @ 20°C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>2.6</td>
</tr>
<tr>
<td>Relative Density</td>
<td>0.800</td>
</tr>
<tr>
<td>Solubility</td>
<td>Partly soluble in water</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>430 °C / 806 °F</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C4 H10 O</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>74.12</td>
</tr>
</tbody>
</table>

10. **Stability and reactivity**

**Reactive Hazard**

None known, based on information available

**Stability**

Stable under normal conditions.

**Conditions to Avoid**


**Incompatible Materials**

Strong oxidizing agents, Acid anhydrides, Acid chlorides

**Hazardous Decomposition Products**

Carbon monoxide (CO), Carbon dioxide (CO₂)
Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. Toxicological information

**Acute Toxicity**

**Product Information**
See actual entry in RTECS for complete 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>Isobutyl alcohol</td>
<td>2460 mg/kg (Rat)</td>
<td>3400 mg/kg (Rabbit)</td>
<td>6.5 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**
No information available

**Irritation**
Severe eye irritant. Irritating to respiratory system 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>Isobutyl alcohol</td>
<td>78-83-1</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**
Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects**
No information available.

**Teratogenicity**
No information available.

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

**STOT - repeated exposure**
None known

**Aspiration hazard**
No information available

**Symptoms / effects, both acute and delayed**
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information**
No information available

**Other Adverse Effects**
Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

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>Isobutyl alcohol</td>
<td>1799 mg/L EC50 = 72 h 230 mg/L EC50 = 48 h</td>
<td>1480 - 1730 mg/L LC50 96 h 1300 mg/L EC50 = 48 h</td>
<td>1224.6 mg/L 15 min 1070 - 1933 mg/L EC50 48 h</td>
<td></td>
</tr>
</tbody>
</table>

**Persistence and Degradability**
Soluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation**
No information available.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutyl alcohol</td>
<td>0.79</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.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutyl alcohol - 78-83-1</td>
<td>U140</td>
<td>-</td>
</tr>
</tbody>
</table>

14. Transport information

<table>
<thead>
<tr>
<th>DOT</th>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>ISOBUTANOL</th>
<th>Hazard Class</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDG</td>
<td>UN-No</td>
<td>Proper Shipping Name</td>
<td>ISOBUTANOL</td>
<td>Hazard Class</td>
<td>III</td>
</tr>
<tr>
<td>IATA</td>
<td>UN-No</td>
<td>Proper Shipping Name</td>
<td>ISOBUTANOL</td>
<td>Hazard Class</td>
<td>III</td>
</tr>
<tr>
<td>IMDG/IMO</td>
<td>UN-No</td>
<td>Proper Shipping Name</td>
<td>ISOBUTANOL</td>
<td>Hazard Class</td>
<td>III</td>
</tr>
</tbody>
</table>

15. Regulatory information

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutyl alcohol</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>201-148-0</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: Yes
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No
2-Methyl-1-propanol

Clean Water Act
Not applicable

Clean Air Act
Not applicable

OSHA Occupational Safety and Health Administration

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutyl alcohol</td>
<td>5000 lb</td>
<td></td>
</tr>
</tbody>
</table>

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

State Right-to-Know

<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>Isobutyl 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): Y
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

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
B2  Flammable liquid
D2B  Toxic materials

16. Other information
Prepared By
Regulatory Affairs
Acros Organics BVBA
Tel: 800-ACROS-01

Creation Date
22-Jan-2009

Revision Date
01-Apr-2014

Print Date
01-Apr-2014

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 on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.
End of SDS