

SAFETY DATA SHEET



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ISOBUTYL ALCOHOL

SDS No. M0127

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Isobutyl Alcohol

Synonyms: 1-Hydroxymethylpropane; Isobutanol; 2-Methylpropanol; 2-Methyl-1-propanol; Isopropylcarbinol

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION



Classification:

Flammable Liquids: GHS Category 3

Skin Irritation: GHS Category 2

Serious Eye Damage: GHS Category 1

Specific target organ toxicity - single exposure: GHS Category 3, Respiratory system, Central nervous system

Label Elements

Signal Word: DANGER!

Hazard Statements:

- H226 – Flammable liquid and vapor.
- H315 – Causes skin irritation.
- H318 – Causes serious eye damage.
- H335 – May cause respiratory irritation.
- H336 – May cause drowsiness or dizziness.

Precautionary Statements:

- P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- P243 – Take precautionary measures against Static discharge.
- P261 – Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 – Wash skin thoroughly after handling.
- P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340+P312 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P305+P351+P338+P310 – 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/ doctor.

P332+P313 – If skin irritation occurs: Get medical advice/ attention.

P403+P235 – Store in a well-ventilated place. Keep cool.

P501 – Dispose of contents/ container to an approved waste disposal plant.

Emergency Overview

May cause severe eye irritation and possible injury. Causes irritation to respiratory tract. Breathing vapors may cause drowsiness and dizziness. Aspiration hazard. Flammable liquid and vapor. Target Organs: Central nervous system, respiratory system, eyes, and skin.

HMIS Rating:

Health – 2* Flammability – 3 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Isobutyl Alcohol	78-83-1	>99%	Yes

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Aspiration hazard if swallowed. Get medical help immediately. Do not induce vomiting unless directed by medical personnel. If vomiting occurs naturally, have victim lean forward. Never give anything by mouth to an unconscious person.

Skin Contact: Remove any contaminated clothing. Rinse skin with water for at least 15 minutes. Get medical attention.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: Flammable liquid and vapor (GHS Category 3)

Auto-ignition Temperature: 415° C (779° F)

Flash Point: 28° C (82° F)

Flammable Limits: Lower Limit – 1.7 vol %, Upper Limit – 10.6 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide, carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Material is lighter than water and a fire may be spread by the use of water. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Specific Explosion Hazards: May form explosive peroxides.

Fire Fighting Media: Water may be ineffective. Use dry chemical, carbon dioxide, or alcohol-resistant foam.

National Fire Protective Association: Health - 2, Flammability - 3, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to

address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Avoid run-off into ditches and sewers that lead to waterways. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away from direct sunlight and all sources of ignition and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep from contact with oxidizing materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirators when necessary.

Exposure Limits:

ACGIH – 50 ppm TWA

NIOSH – 50 ppm TWA; 150 mg/m³ TWA; 1600 ppm IDLH

OSHA Final PELs – 100 ppm TWA; 300 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Colorless, oily liquid.

Odor: Mild, sweetish, slightly musty

Odor Threshold: 1.6 ppm

Molecular Formula: (CH₃)₂CHCH₂OH

Molecular Weight: 74.12

Auto-ignition Temperature: 415° C (779° F)

Flash Point: 28° C (82° F)

Flammable Limits: Lower Limit – 1.7 vol %, Upper Limit – 10.6 vol %

pH: Not available.

Boiling Point: 107° C @ 760 mm Hg

Freezing/Melting Point: -108° C

Decomposition Temperature: Not available

Specific Gravity: 0.802 g/cm³

Vapor Density (Air=1): 2.1

Vapor Pressure: 10.5 mm Hg @ 25° C.

Evaporation Rate (Butyl acetate = 1): 0.6

Viscosity: 4.0 cps 20° C

Solubility: Partially soluble

Conductivity: Conductive; Conductivity = 9.12×10^5 pS/m; Dielectric Constant = 17.51; Relaxation Time Constant = 1.7×10^{-7} seconds

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperature and pressure. May form unstable peroxides.

Conditions to Avoid: Ignition sources, excess heat, prolonged exposure to air, confined spaces.

Incompatibility With Various Substances: Strong oxidizing agents, acid chlorides, and acid anhydrides.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Causes upper respiratory tract irritation. Inhalation of high concentrations may cause central nervous effects characterized by nausea, headache, dizziness, unconsciousness, and coma.

INGESTION HAZARD: Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

SKIN CONTACT HAZARD: Causes skin irritation. May be absorbed through the skin. Repeated or prolonged exposure may cause drying and cracking of the skin.

EYE CONTACT HAZARD: May cause severe eye damage. May cause chemical conjunctivitis and corneal damage. A drop of isobutanol instilled into a rabbit's eye caused moderate to severe irritation but no permanent injury to the cornea. No evidence of eye irritation was noted with repeated 8-hour exposures at 100 ppm isobutanol vapor.

Chronic Exposure Hazards: In studies of limited size, administration of isobutyl alcohol by subcutaneous injection or by gavage has been reported to cause an increased incidence of benign and malignant tumors in rats. The relevance of these findings to humans is unknown.

Animal Toxicity:

Inhalation, mouse: LC50 = 15500 mg/m³/2H;

Inhalation, rabbit: LC50 = 2630 mg/m³/4H;

Inhalation, rat: LC50 = 19200 mg/m³/4H;

Oral, mouse: LD50 = 3500 mg/kg;

Oral, rabbit: LD50 = 74.1 mg/kg;

Oral, rat: LD50 = 2460 mg/kg;

Skin, rabbit: LD50 = 3400 mg/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: No information available.

Teratogenicity: Based on a study in experimental animals, isobutyl alcohol is not anticipated to increase the risk of adverse pregnancy outcome at typical exposure levels.

Reproductive Effects: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fathead Minnow: 1430g/L; 96H;

Fish: Fathead Minnow: 1430g/L; 96H; No data available.

Environmental Fate: Terrestrial: When spilled on soil, isobutyl alcohol will both evaporate and leach into the ground due to its relatively high vapor pressure and low adsorption to soil. Aquatic: When released into water, isobutyl alcohol will volatilize (half-life in a river approximately 4 days). Atmospheric: When released into the atmosphere, isobutyl alcohol will photodegrade with a half-life ranging from hours in polluted urban atmospheres, to days in cleaner atmospheres.
Physical: Readily biodegrades but does not bioconcentrate.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use, or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

US DOT

Proper Shipping Name: Isobutanol
Hazard Class: 3
UN Number: UN1212
Packing Group: III

IMDG

Proper Shipping Name: Isobutanol
Hazard Class: 3
UN Number: UN1212
Packing Group: III

IATA

Proper Shipping Name: Isobutanol
Hazard Class: 3
UN Number: UN1212
Packing Group: III

15. REGULATORY INFORMATION

US Federal Regulations:

CERCLA Hazardous Substances: CAS 78-83-1: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302: Does not have a TPQ
SARA Codes: CAS# 78-83-1 – immediate; fire
Section 313: Isobutanol (CAS# 78-83-1) is not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.
OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 78-83-1 is on the following state right-to-know lists: California, New Jersey, Pennsylvania, and Massachusetts
California Prop 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Originally Prepared: 5/21/2007

Last Revised: 5/06/2021 – Updated hazard statements and precautionary statements in Section 2

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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