

School Material Safety Data Sheet

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ISOBUTYL ALCOHOL

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SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME AND FORMULA: ISOBUTYL ALCOHOL; $C_4H_{10}O$

SYNONYMS: IBA, Isobutanol, 1-Hydroxymethyl Propane, Isopropyl Carbinol, 2-Methyl Propanol, $(CH_3)_2CHCH_2OH$, 2-Methyl-1-Propanol, 2-Methylpropan-1-ol, 2-Methylpropyl Alcohol

CAS NUMBER: 0078-83-1

INGREDIENTS: Isobutyl Alcohol, ca 100%

DOT CLASSIFICATION: Flammable Liquid

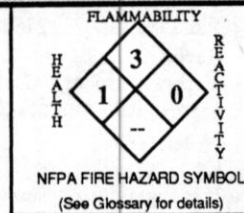
OSHA CLASSIFICATION: Class IC Flammable Liquid

EPA CLASSIFICATION: Hazardous Waste

MANUFACTURERS: Always request Material Safety Data Sheets from your chemical supplier. These should indicate the manufacturer of the substance and include an emergency phone number to call. The Manufacturers section of this book contains a listing of some of the larger manufacturers and available emergency numbers.

DESCRIPTION: This is a clear, colorless liquid with a mild, alcohol-like, nonresidual odor. Odor recognition threshold (100% of test panel, unfatigued) is 2.05 ppm.

PRELIMINARY INFORMATION: Isobutyl alcohol is a moderately toxic, flammable liquid which can be irritating to body tissue. Most common area of use would be in the chemistry lab. This material should not be used in schools if alternatives can be found to meet the necessary educational objectives. If its use is deemed necessary, keep amounts used to a minimum and use with great caution.



SECTION 2. USE AND STORAGE INFORMATION

-- PRELIMINARY PLANNING CONSIDERATIONS --

- Safety glasses or goggles and protective clothing (rubberized apron, etc.) should be worn for all experiments.
- Be sure eyewash station and safety shower are in good working order and readily available.
- Always provide for safe disposal of all chemical waste generated in the lab. Check applicable regulations prior to use.
- Not recommended for use or storage in schools without an absolute need being determined.
- Provide adequate ventilation or restrict use to fume hood.
- Eliminate all possible sources of ignition. Nearby electrical service and equipment should be explosion proof (no spark-generation potential).
- Whenever possible, substitute less hazardous materials.
- Rubber gloves are recommended when working with this material to avoid repeated or prolonged contact.
- Substance may attack plastic containers; store in metal safety cans of carbon steel, 304 stainless steel, or lined carbon steel, or store in glass bottles inside protective metal container lined with vermiculite.

-- USAGE PRECAUTIONS AND PROCEDURES --

- READ THE LABEL and follow all precautions.
- Maintain good housekeeping practices to avoid unintentional mixing with incompatible materials.
- For safety, contact lenses should not be worn in the laboratory; soft lenses may absorb irritants and all lenses may concentrate them. Particles can also adhere to contact lenses and cause corneal damage.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- Do not breathe vapors -- dispense only in a fume hood.
- Keep away from strong oxidizing agents and sources of heat or ignition. Avoid static sparks when pouring or transferring to other containers.
- Prevent contact with eyes, skin, and clothing. (Remove contaminated clothing and laundry before reuse.)
- Follow good personal hygiene practices, since chronic exposure effects are not well understood.

-- ADDITIONAL INFORMATION --

- Isobutyl alcohol does not polymerize. This material is stable at room temperature under normal conditions.
- Incompatible with strong oxidizing agents, inorganic acids, aldehydes, and isocyanates.
- May attack metallic aluminum at high temperatures.

-- PREFERRED STORAGE LOCATION AND METHODS --

- Storage area should be cool and well ventilated. Containers should be tightly closed.
- Do not store chemicals alphabetically by name; store by chemical family instead to keep compatibles together.
- All chemical containers should be protected from physical damage and kept out of direct sunlight.
- Smoking should not be permitted in areas where chemicals are stored.
- Purchase only amounts equivalent to one year's needs, if at all.
- Should be stored in approved FLAMMABLES cabinet, away from oxidizing agents and sources of heat or ignition.

SECTION 3. SPILLS AND DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Evacuate unnecessary personnel.
- Eliminate all possible sources of ignition. Nearby electrical service and equipment should be explosion proof (no spark-generation potential). Provide maximum explosion-proof ventilation. Use nonsparking tools for cleanup.
- Cleanup personnel should wear personal protective equipment as necessary to prevent skin or eye contact and inhalation of vapors.
- Absorb on paper toweling if amount spilled is small, or cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop into an appropriate container (with secure lid) for disposal in accordance with existing regulations. Dike with inert absorbent material, as needed, to contain and limit spill area. Prevent liquid from entering sewers or waterways (EPA Hazardous Waste).

DISPOSAL OF SMALL QUANTITIES:

- Contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.
- Diking material used for cleanup of spills may be buried in an approved landfill, regulations permitting.
- Small quantities of waste material may be burned in an incinerator if approved methods and applicable regulations are followed.
- Do not flush down drains.

DISPOSAL OF LARGER AMOUNTS: Contact a licensed disposal company.

FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL

SECTION 4: HEALTH HAZARDS

Isobutyl alcohol has not been identified as a known or suspected carcinogen by the NTP, IARC, or OSHA.

Current OSHA PEL: 8-hr. TWA: 100 ppm. (300 mg/m³)

Current ACGIH TLV: 8-hr TWA: 50 ppm (150 mg/m³).

- Rat, Oral, LD₅₀: 2460 mg/kg; Inhalation LCLo: 8000 ppm for 4 hours; Subcutaneous (intermittent) TDLo: 9 g/kg
- Rabbit, Skin, LD₅₀: 4240 mg/kg.
- Vapors of isobutyl alcohol are irritating to the eyes, mucous membranes, and respiratory tract. In high concentrations, vapors may cause headache, nausea, dizziness, drowsiness, narcosis, and unconsciousness, depending on the level and time of exposure.
- On skin contact, the liquid is irritating and may cause eczematoid dermatitis, especially if contact is repeated or prolonged. It is slightly toxic through skin absorption.
- Eye contact causes extreme irritation and may cause severe, irreversible damage.
- Ingestion of isobutyl alcohol causes irritation of the GI tract and may cause nausea, dizziness, headache, stupor, and CNS depression.
- Chronic effects of exposure to isobutyl alcohol are not well understood. The TLV is based on analogy with n-butyl alcohol.

SECTION 5: FIRST AID PROCEDURES**Eye contact:**

- Flush eyes promptly with plenty of running water for at least 15 minutes, including under the eyelids.
- Get prompt medical attention.*

Skin contact:

- Flush affected area with large amounts of water.
- Remove contaminated clothing promptly.
- Wash exposed areas of skin with soap and water.
- Get medical attention if irritation occurs.*

Inhalation:

- Remove victim to fresh air; restore and/or support breathing as necessary.
- Get medical attention if irritation persists, or if symptoms of serious overexposure have occurred.*

Ingestion:

- Give several glasses of milk or water to drink as quickly as possible. Do not induce vomiting unless directed to do so.
- Never give anything by mouth to a person who is unconscious or convulsing.
- Contact medical personnel or a poison control center.

* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

SECTION 6: FIRE PROCEDURES AND DATA

- This flammable liquid (OSHA Class IC) is a moderate fire hazard when exposed to heat, flame, or oxidizers.
- Extinguishing media: carbon dioxide, dry chemical, or alcohol type of foam.
- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.
- Use of a direct stream of water may scatter the fire.
- A water spray may be used to cool fire-exposed containers and disperse vapors.
- The heavier-than-air vapors may flow along surfaces to distant sources of ignition and flash back.

THERMAL DECOMPOSITION OR BURNING PRODUCTS: Carbon monoxide (CO), carbon dioxide (CO₂), or isobutylene.

FLASH POINT AND METHOD(S) ... 86°F (30°C) (TCC)

AUTOIGNITION TEMPERATURE ... 824°F (440°C)

FLAMMABILITY LIMITS IN AIR (vol. %): Lower ... 1.2 Upper ... 10.9

SECTION 7: PHYSICAL DATA

BOILING POINT (@ 1 atm.) ... 226.2°F (107.9°C)

VAPOR PRESSURE (@ 20°C, mm Hg) ... 8.8

VAPOR DENSITY (air = 1) ... 2.55

SOLUBILITY IN WATER (@ 20°C, (wt. %) ... 8.5

REFRACTIVE INDEX (@ 15°C) ... 1.397

SPECIFIC GRAVITY (20°/20°C) ... 0.803

FREEZING POINT ... -162.4°F (-108°C)

MOLECULAR WEIGHT ... 74.12

EVAPORATION RATE (BuAc = 1) ... 0.82

% VOLATILE ... ca 100

DATA SOURCES: Genium's Industrial MSDS #398 (8/85) and references 1-8, 12, 21, 47, 59, 71, 82, 501, 506, 509-11.
(see glossary for titles)

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Approvals:

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Indust. Hygiene/Safety

Medical Review

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