

# **MSDS – MATERIAL SAFETY DATA SHEET**

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## **ISOBUTYL ALCOHOL**

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### **1. Product Identification**

**Synonyms:** 1-Hydroxymethylpropane; isobutanol; 2-methylpropanol; 2-methyl-1-propanol; Isopropylcarbinol

**CAS No.:** 78-83-1

**Molecular Weight:** 74.12

**Chemical Formula:** (CH<sub>3</sub>)<sub>2</sub> CHCH<sub>2</sub>OH

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### **2. Composition/Information on Ingredients**

| Ingredient       | CAS No  | Percent | Hazardous |
|------------------|---------|---------|-----------|
| Isobutyl Alcohol | 78-83-1 | 100%    | Yes       |

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### **3. Hazards Identification**

#### **Emergency Overview**

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**WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.**

## SAFETY DATA Ratings (Provided here for your convenience)

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Health Rating: 2 - Moderate

Flammability Rating: 2 - Moderate

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate (Life)

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES;  
CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

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### Potential Health Effects

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#### **Inhalation:**

Causes irritation to respiratory tract. Effects from overexposure include headache, dizziness, muscle weakness, drowsiness, incoordination, confusion, and coma. High concentrations can cause central nervous system damage, pulmonary edema, and liver damage. Death may occur from respiratory failure.

#### **Ingestion:**

Ingestion may cause nausea, vomiting, and diarrhea. Large doses may cause central nervous system damage, pulmonary edema, and liver damage. Death may occur from respiratory failure.

#### **Skin Contact:**

Skin contact causes irritation, redness, and pain. May be absorbed through the skin; symptoms of absorption may be similar to those from ingestion exposure.

#### **Eye Contact:**

Vapors cause irritation, redness, and blurred vision. Splashes may cause severe irritation or eye damage.

#### **Chronic Exposure:**

Prolonged or repeated skin exposure may cause dermatitis.

#### **Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

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## 4. First Aid Measures

#### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

#### **Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

#### **Skin Contact:**

Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Wash clothes before reuse. Get medical attention if irritation develops or persists.

**Eye Contact:**

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

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## 5. Fire Fighting Measures

**Fire:**

Flash point: 28C (82F) CC

Autoignition temperature: 415C (779F)

Flammable limits in air % by volume:

l<sub>el</sub>: 1.7; u<sub>el</sub>: 10.6

Flammable Liquid and Vapor!

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode in heat or fire.

**Fire Extinguishing Media:**

Dry chemical, foam or carbon dioxide. Do not use a solid stream of water, since the stream will scatter and spread the fire. Water spray may be used to keep fire exposed containers cool.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking

type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL): 100 ppm (TWA)

-ACGIH Threshold Limit Value (TLV): 50 ppm (TWA)

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### **Appearance:**

Clear, colorless solution.

### **Odor:**

Sweet-musty odor.

### **Solubility:**

9.5g/100ml water @ 20C (68F).

### **Specific Gravity:**

0.803

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

108C (226F)

**Melting Point:**

-108C (-162F)

**Vapor Density (Air=1):**

2.6

**Vapor Pressure (mm Hg):**

8.8 @ 20C (68F)

**Evaporation Rate (BuAc=1):**

0.8

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Burning may produce carbon monoxide, carbon dioxide and isobutylene.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Oxidizing agents, inorganic acids, aldehydes, isocyanates.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

## 11. Toxicological Information

Isobutyl alcohol: Oral rat LD50: 2460 mg/kg. Skin rabbit LD50: 3400 mg/kg. Irritation data: Skin rabbit 500 mg/24H moderate. Eye,open, rabbit 2mg severe; Investigated as a tumorigen and a mutagen.

| Ingredient                 | ---NTP Carcinogen--- |             | IARC Category |
|----------------------------|----------------------|-------------|---------------|
|                            | Known                | Anticipated |               |
| Isobutyl Alcohol (78-83-1) | No                   | No          | None          |

## 12. Ecological Information

### **Environmental Fate:**

When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. This material has a log octanol-water partition coefficient of less than 3.0. When released to water, this material is expected to quickly evaporate. When released into water, this material is expected to readily biodegrade. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

### **Environmental Toxicity:**

This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/l.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### **Domestic (Land, D.O.T.)**

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**Proper Shipping Name:** ISOBUTANOL

**Hazard Class:** 3

**UN/NA:** UN1212

**Packing Group:** III

**Information reported for product/size:** 2.5L

### **International (Water, I.M.O.)**

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**Proper Shipping Name:** ISOBUTANOL

**Hazard Class:** 3

**UN/NA:** UN1212

**Packing Group:** III

**Information reported for product/size:** 2.5L

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## 15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                               TSCA  EC   Japan  Australia
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Isobutyl Alcohol (78-83-1)              Yes   Yes   Yes    Yes
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-----\Chemical Inventory Status - Part 2\-----
Ingredient                               --Canada--
                               Korea  DSL   NDSL   Phil.
-----
Isobutyl Alcohol (78-83-1)              Yes   Yes   No     Yes
```

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-----\Federal, State & International Regulations - Part 1\-----
Ingredient                               -SARA 302-  -----SARA 313-----
                               RQ    TPQ    List   Chemical Catg.
-----
Isobutyl Alcohol (78-83-1)              No    No     No     No
```

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-----\Federal, State & International Regulations - Part 2\-----
Ingredient                               -RCRA-    -TSCA-
                               CERCLA    261.33    8(d)
-----
Isobutyl Alcohol (78-83-1)              5000     U140     No
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Chemical Weapons Convention: No TSCA 12(b): No CDTA: Yes  
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No  
Reactivity: No (Pure / Liquid)

**Australian Hazchem Code:** 3[Y]

**Poison Schedule:** None allocated.

### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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## 16. Other Information

**NFPA Ratings:** Health: **1** Flammability: **3** Reactivity: **0**

### Label Hazard Warning:

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

### Label Precautions:

Avoid breathing vapor.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

Avoid contact with eyes, skin and clothing.

Keep away from heat, sparks and flame.

**Label First Aid:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Flush skin with soap or mild detergent and water for at least 15 minutes. Wash contaminated clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In all cases call a physician.

**Product Use:**

Laboratory Reagent.

**Revision Information:** No Changes.

**Disclaimer:**

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