

SAFETY DATA SHEET



1000 Tedia Way
Fairfield, Ohio 45014
USA
Email: tedia@tedia.com
Web: www.tedia.com

24-Hour Emergency Number (CHEMTREC)

USA: 800-424-9300
International: 703-527-3887

All non-emergency numbers should be directed
to Customer Service at 800-PURITY1

ISOPROPYL ETHER

SDS No. M0129

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Isopropyl Ether

Synonyms: Diisopropyl Ether, Diisopropyl oxide, ether, isopropyl

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 2

Skin Irritation: GHS Category 3

Specific Target Organ Toxicity, single exposure: GHS Category 3

Acute Aquatic Toxicity: GHS Category 3

Label Elements

Signal Word: DANGER!

Hazard Statements:

- H225 – Highly flammable liquid and vapor.
- H241 – Heating may cause fire or explosion.
- H303 – May be harmful if swallowed.
- H313 – May be harmful in contact with skin.
- H320 – Causes eye irritation.
- H333 – May be harmful if inhaled.

Precautionary Statements:

- P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Emergency Overview

May cause central nervous system depression. May cause irritation by all exposure routes. Highly flammable liquid and vapor. Vapor may cause flash fire. May form explosive peroxides. Target Organs: Central nervous system.

Clear focus. Consistent results. Complete confidence.

HMIS Rating:

Health – 1 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>
Isopropyl Ether	108-20-3	>99%	Yes

4. FIRST-AID MEASURES

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

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Skin Contact: Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

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

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: Highly flammable liquid and vapor (GHS Category 2)

Auto-ignition Temperature: 443° C (830° F)

Flash Point: -17° C (-18° F)

Flammable Limits: Lower Limit – 1.4 vol %, Upper Limit – 7.9 vol %

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

Specific Fire Hazards: Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid. Vapor may cause flash fire. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Forms peroxides of unknown stability. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Specific Explosion Hazards: Forms peroxides of unknown stability. Containers may explode in the heat of a fire.

Fire Fighting Media: Use water spray to cool fire-exposed containers. Use dry chemical, carbon dioxide, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.

National Fire Protective Association: Health - 1, Flammability - 3, Reactivity - 1

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

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Provide ventilation to the affected area and remove all ignition sources. Avoid run-off into storm sewers and ditches that lead to waterways. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Use only non-sparking

tools and equipment. A vapor suppressing foam may be used. 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. Take precautions against static discharge. Keep container tightly closed and away from heat, spark, and flame. Handle under an inert atmosphere. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. If peroxide formation is suspected, do not open or move. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep away from heat and flame. Keep away from sources of ignition. Purge container with nitrogen before resealing. Keep dry. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids. Storage under a nitrogen blanket has been recommended.

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 appropriate eye protection. Use appropriate protective gloves and protective clothing to prevent skin exposure. Chemical-resistant nitrile gloves should be used during routine handling. Disposable nitrile gloves may be recommended for intermittent use. PVC, Neoprene, Viton, Butyl, or natural rubber gloves are not recommended. 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 respirator when necessary.

Exposure Limits:

ACGIH – 250 ppm ; 1040 mg/m³; 310 ppm STEL; 1300 mg/m³ STEL

NIOSH – 500 ppm TWA; 2100 mg/m³ TWA 1400 ppm IDLH (10 percent lower explosive limit)

OSHA Final PELs – 500 ppm TWA; 2100 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Ethereal odor

Molecular Formula: [(CH₃)₂CH]₂O

Molecular Weight: 102.18

Auto-ignition Temperature: 443° C (830° F)

Flash Point: -17° C (-18° F)

Flammable Limits: Lower Limit – 1.4 vol %, Upper Limit – 7.9 vol %

pH: Not available.

Boiling Point: 68° C (154° F)@ 760 mm Hg

Freezing/Melting Point: -82° C (-123° F)

Decomposition Temperature: Not available

Specific Gravity: 0.72 g/ml

Vapor Density (Air=1): 3.5

Vapor Pressure: 150 mm Hg @ 25° C.

Evaporation Rate (Butyl Acetate = 1): Not available

Viscosity: 0.38 mPas @ 25° C

Solubility: 0.65%

10. STABILITY AND REACTIVITY

Stability: Explosive peroxides can form upon concentration.

Conditions to Avoid: High temperatures, incompatible materials, light, ignition sources, excess heat, strong oxidizers.

Incompatibility With Various Substances: Chlorosulfonic acid, nitric acid, strong oxidizers, acids, propionyl chloride.

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: Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation.

INGESTION HAZARD: May cause irritation of the digestive tract. 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. Prolonged or repeated exposure may cause drying and cracking of skin.

EYE CONTACT HAZARD: Causes mild eye irritation.

Chronic Exposure Hazards: Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. Prolonged or repeated skin contact may cause defatting and dermatitis.

Animal Toxicity:

Inhalation, mouse: LC50 =131 gm/m³;

Inhalation, rabbit: LC50 =121 gm/m³;

Inhalation, rat: LC50 =162 gm/m³;

Oral, rat: LD50 = 8470 mg/kg;

Skin, rabbit: LD50 = 20 gm/kg;

Carcinogenicity: Not listed by ACGIH, California, NTP, or IARC

Epidemiology: No information found.

Teratogenicity: No information found.

Reproductive Effects: No information found.

Mutagenicity: No information found.

Neurotoxicity: No information found.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

LC50 =91.7 mg/L/96 hr. for fathead minnow;

Environmental Fate: Isopropyl ether should volatilize in water. In air, it is expected to exist almost entirely in the vapor phase.

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, IATA, IMO

Proper Shipping Name: Diisopropyl Ether

Hazard Class: 3
UN Number: UN1159
Packing Group: II

Canada TDG

Additional Information: Flashpoint -17 C

15. REGULATORY INFORMATION

US Federal Regulations:

TSCA: CAS# 108-20-3 is listed on the TSCA Inventory.
Health and Safety Reporting List: CAS# 108-20-3 is not listed.
Chemical Test Rules: CAS# 108-20-3 is not listed.
Section 12b: CAS# 108-20-3 is not listed.
TSCA Significant New Use Rule: Does not have an SNUR under TSCA.
CERCLA Hazardous Substances: CAS# 108-20-3 does not have a final RQ
SARA Section 302: Does not have a TPQ
SARA Codes: CAS# 108-20-3 – acute, flammable,, reactive
Section 313: Isopropyl Ether (CAS# 108-20-3) is not subject to SARA Title III reporting requirements.
Clean Air Act: CAS# 108-20-3 is not listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.
Clean Water Act: CAS# 108-20-3 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.
OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 108-20-3 is on the following state right-to-know lists: California, Florida, New Jersey, Pennsylvania, Minnesota, and Massachusetts
California Prop 65: California No Significant Risk Level: Not listed

Canada:

DSL/NDL: CAS# 108-20-3 is listed on Canada's DSL list.
WHMIS: This product has a WHMIS classification of B2, D2B, F. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.
Ingredient Disclosure List: CAS# 108-20-3 is not listed on Canada's Ingredient Disclosure list.

DSCL (EEC):

Hazard Symbols: F
Risk Phrases: R11 – Highly Flammable; R19 – May form explosive peroxides.
Safety Phrases: S9 – Keep container in well ventilated place; S16 – Keep away from sources of ignition-no smoking; S33 – Take precautionary measures against static discharges.
WGK (Water Danger/protection): CAS# 108-20-3: 1

16. OTHER INFORMATION

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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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