

Material Safety Data Sheet

Version 3.2
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Diethyl ether

Product Number : 346136
Brand : Sigma-Aldrich

Company : Sigma-Aldrich Canada, Ltd
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CANADA

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Ethyl ether

Formula : (CH₃CH₂)₂O

CAS-No.	EC-No.	Index-No.	Concentration
Diethyl ether			
60-29-7	200-467-2	603-022-00-4	>= 99 %
2,6-di-tert-Butyl-p-cresol			
128-37-0	204-881-4	-	<= 1 %

3. HAZARDS IDENTIFICATION**Emergency Overview****Target Organs**

Central nervous system, Kidney, Liver, Gastrointestinal tract, Skeletal muscle.

Other hazards which do not result in classification

May form explosive peroxides.

WHMIS Classification

B2 Flammable Liquid
D2B

Flammable Liquid
Moderate skin irritant
Moderate eye irritant

HMIS Classification

Health Hazard: 2
Chronic Health Hazard: *
Flammability: 4
Physical hazards: 0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
Skin	May be harmful if absorbed through skin. Causes skin irritation. Repeated exposure may cause skin dryness or cracking.
Eyes	Causes eye irritation.
Ingestion	Harmful if swallowed.

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point -40 °C (-40 °F)

Ignition temperature 160 °C (320 °F)

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment.

Storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Light sensitive. Heat sensitive. Air sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Diethyl ether	60-29-7	TWA	400 ppm	2006-11-29	Canada. British Columbia OEL
		STEL	500 ppm	2006-11-29	Canada. British Columbia OEL
		TWAE V	400 ppm 1,210 mg/m3	2005-12-17	Canada. Ontario OELs
		STEV	500 ppm 1,515 mg/m3	2005-12-17	Canada. Ontario OELs
		TWA	400 ppm 1,210 mg/m3	2004-04-30	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		STEL	500 ppm 1,520 mg/m3	2004-04-30	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	400 ppm 1,210 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		STEL	500 ppm 1,520 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWAE V	400 ppm 1,210 mg/m3	2006-12-29	Canada. Quebec OELs
		STEV	500 ppm 1,520 mg/m3	2006-12-29	Canada. Quebec OELs
2,6-di-tert-Butyl-p-cresol	128-37-0	TWA	2 mg/m3	2006-11-29	Canada. British Columbia OEL
Remarks	Vapour and aerosol.				
		TWA	10 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Occupational exposure limit is based on irritation effects and its adjustment to					

	compensate for unusual work schedules is not required				
		TWAE V	10 mg/m3	2006-12-29	Canada. Quebec OELs
		TWAE V	2 mg/m3	2005-12-17	Canada. Ontario OELs

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Face shield and safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	colourless

Safety data

pH	no data available
Melting point	-116 °C (-177 °F)
Boiling point	34.6 °C (94.3 °F) at 1,013 hPa (760 mmHg)
Flash point	-40 °C (-40 °F)
Ignition temperature	160 °C (320 °F)
Lower explosion limit	1.8 %(V)
Upper explosion limit	48 %(V)
Vapour pressure	590.021 hPa (442.552 mmHg) at 20 °C (68 °F) 1,975.467 hPa (1,481.722 mmHg) at 55 °C (131 °F)
Density	0.710 g/cm3
Water solubility	no data available
Relative vapour density	2.56 - (Air = 1.0)

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Oxidizing agents, Strong acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Hazardous reactions

Vapours may form explosive mixture with air.

Contains the following stabiliser(s):

BHT (<=1 %)

11. TOXICOLOGICAL INFORMATION**Acute toxicity**

LD50 Oral - rat - 1,215 mg/kg

LC50 Inhalation - mouse - 30 min - 31000 ppm

Remarks: Behavioral:Convulsions or effect on seizure threshold.

LD50 Dermal - rabbit - > 14.2 g/kg

Irritation and corrosion

Eyes - rabbit - Eye irritation - 24 h - Draize Test

Sensitisation

no data available

Chronic exposure

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,6-di-tert-Butyl-p-cresol)

Genotoxicity in vitro - mouse - Embryo

DNA inhibition

Genotoxicity in vitro - mouse - Embryo

DNA inhibition

Genotoxicity in vitro - Hamster - fibroblast

Other mutation test systems

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects**Inhalation**

May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.

Skin

May be harmful if absorbed through skin. Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Eyes

Causes eye irritation.

Ingestion

Harmful if swallowed.

Target Organs

Central nervous system, Kidney, Liver, Gastrointestinal tract, Skeletal muscle.,

Additional Information

RTECS: KI5775000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

Ecotoxicity effects

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 2,560 mg/l - 96 h

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN-Number: 1155 Class: 3 Packing group: I
Proper shipping name: Diethyl ether
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 1155 Class: 3 Packing group: I EMS-No: F-E, S-D
Proper shipping name: DIETHYL ETHER
Marine pollutant: No

IATA

UN-Number: 1155 Class: 3 Packing group: I
Proper shipping name: Diethyl ether

15. REGULATORY INFORMATION

DSL Status

All components of this product are on the Canadian DSL list.

WHMIS Classification

B2 Flammable Liquid
D2B

Flammable Liquid
Moderate skin irritant
Moderate eye irritant

16. OTHER INFORMATION

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.