

Revision date: 05/11/2016

Version: 1.1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Trade name/designation:	Ether
Product No.:	BDH3116-1L
Other means of identification:	Diethyl ether; 1,1'Oxybisethane; Ethyl ether

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Manufacturing and Laboratory use

### 1.3. Details of the supplier of the safety data sheet

Company VWR International, LLC  
Radnor Corporate Center  
100 Matsonford Road  
Radnor, PA 19087-8660  
Telephone 610.386.1700

### 1.4. Emergency Telephone number

CHEMTREC 800.424.9300  
CANUTEC 613.996.6666

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

For the full text of the H-Statement(s) and R-phrases(s) mentioned in this Section, see Section 16.

Hazard classes and hazard categories	Hazard statements
Flammable liquids; Category 1	Extremely flammable liquid and vapour
Acute toxicity, Oral; Category 4	Harmful if swallowed
Eye irritation; Category 2A	Causes serious eye irritation
Specific target organ toxicity - single exposure - Respiratory system	May cause drowsiness or dizziness

## 2.2. GHS Label elements, including precautionary statements



Pictograms

Signal word    Danger

Hazard statements	
H224	Extremely flammable liquid and vapor.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements	
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/Bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/physician if you feel unwell.
P330	Rinse mouth.
P337+P313	If eye irritation persists: Get medical advice/attention.

P370+P378	In case of fire: Use appropriate media to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulations.

### 2.3. WHIMS Classification

Class B-2: Flammable and combustible liquid- Flammable liquid

### 2.4. Hazards not otherwise classified (HNOC) or not covered by GHS or WHIMS

Not Available

## SECTION 3: Composition / information on ingredients

### 3.1. Hazard components

Chemical name	Formula	Molecular weight	CAS#	Weight%
Diethyl Ether	C <sub>4</sub> H <sub>10</sub> O	74.12 g/mol	60.29-7	>99

## SECTION 4: First aid measures

### 4.1. General information

#### In case of inhalation

Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respirations.

#### In case of skin contact

Flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention immediately.

#### In case of eye contact

Immediately rinse with plenty of water for at least 15 minutes and seek medical attention.

#### In case of ingestion

**Do Not Induce Vomiting!** Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

### 4.2. Most important symptoms and effects, both acute and delayed

Contact with skin may cause irritation, redness, drying or cracking. Contact to eyes may cause redness, burning, tearing or irritation. Inhalation may cause coughing, wheezing, irritation of

upper respiratory tract, dizziness, drowsiness. Ingestion may cause nausea, vomiting, diarrhea, irritation of gastrointestinal tract, dizziness, drowsiness.

#### **4.3. Indication of any immediate medical attention and special treatment needed**

Not Available

### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

For small (incipient) fires, use media such as alcohol resistant 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 or water may be ineffective. Cool all affected containers with water.

#### **5.2. Special hazards arising from the substance or mixture**

Carbon oxides

#### **5.3. Special protective equipment for firefighters**

Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.

#### **5.4. Hazardous combustion products**

Not Available

#### **5.5. Advice for firefighters**

Vapors can travel to a source of ignition and flash back. Containers may explode in a fire. Cool containers from a distance using water spray. Sensitive to static discharge.

#### **5.6. Additional information**

Not Available

### **SECTION 6: Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**

See section 8 for recommendations on the use of personal protective equipment.

#### **6.2. Environmental precautions**

Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.

### 6.3. Methods and material for containment and cleaning up

Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

### 6.4. Additional information

Not Available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of aerosols.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in cool, dry, well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

### 7.3. Specific end use(s)

Not Available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Chemical Name	Limit value type & Country of Origin	Exposure Limit value	Source
Diethyl Ether	TLV	400 ppm 1210 mg/m <sup>3</sup>	ACGIH
	STEL	500 ppm 1520 mg/m <sup>3</sup>	ACGIH
	PEL	400 ppm 1200 mg/m <sup>3</sup>	OSHA
	IDLH	1900 ppm	OSHA

### 8.2. Exposure controls

#### Appropriate engineering controls

- Showers
- Eye wash stations
- Ventilation system

**Personal protection equipment**

**Eye/face protection**

Safety glasses or goggles with face shield

**Skin protection**

Nitrile or rubber gloves and full body protection

**Respiratory protection**

Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practices.

## SECTION 9: Physical and Chemical Properties

### 9.1. Information on basic physical and chemical properties

a) Appearance:	
Physical state	Liquid
Color	Clear, colorless
b) Odor	Sweet, ether-like
c) Odor Threshold	Not Available
d) pH	Not Available
e) Melting point/ freezing point	-115.99°C (-176.78°F)
f) Initial boiling point and boiling range	34.6°C (94.3°F)
g) Flash point	-39.99°C (-39.98°F)
h) Evaporation rate	Not Available
i) Flammability (solid, gas)	Not Available
j) Upper/lower flammability or explosive limits	Upper: 48% (V) Lower: 1.8% (V)
k) Vapor pressure	189 hPa (142 mmHg) at 0°C (32°F) 389 hPa (292 mmHg) at 10°C (50°F) 563 hPa (422 mmHg) at 20°C (68°F) 863 hPa (647 mmHg) at 30°C (86°F) 1,228 hPa (921 mmHg) at 40°C (104°F) 2,311 hPa (1,733 mmHg) at 60°C (140°F)
l) Vapor density	2.56 (air = 1)
m) Relative density	0.706 g/cm <sup>3</sup> at 20°C (68°F)
n) Solubilities	Soluble in water
o) Partition coefficient	Log pow: 1.1

- (n-Octanol/Water)
- p) Auto-ignition temperature 170 °C (338 °F)
  - q) Decomposition temperature Not Available
  - r) Viscosity Not Available
  - s) Explosive properties Not Available
  - t) Oxidizing properties Not Available

## 9.2. Other information

Not Available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Not Available

### 10.2. Chemical stability

Stable under normal storage conditions

### 10.3. Possibility of hazardous reactions

Not Available

### 10.4. Conditions to avoid

Not Available

### 10.5. Incompatible materials

Zinc, iron, copper

### 10.6. Hazardous decomposition products

Carbon oxides

## SECTION 11: Toxicology

### 11.1. Information on toxicological effects

#### Acute toxicity

Oral LD<sub>50</sub> - rat - 350 mg/kg

Inhalation LC<sub>50</sub>

Dermal LD<sub>50</sub>

Other information on acute toxicity

#### Skin corrosion/irritation

Not Available

**Serious eye damage/eye irritation**

Not Available

**Respiratory or skin sensitization**

Not Available

**Germ cell mutagenicity**

Not Available

**Carcinogenicity**

Not Available

**Reproductive toxicity**

Not Available

**Specific target organ toxicity-single exposure**

Not Available

**Specific target organ toxicity-repeated exposure**

Not Available

**Aspiration hazard**

Not Available

**Additional information**

Not Available

## SECTION 12: Ecological information

**12.1. Ecotoxicity**

Mortality NOEC - Oncorhynchus tshawytscha - 3.5 mg/l - 3.0 d  
LC50 - Daphnia magna (Water flea) - 32 mg/l - 50 h

**12.2. Persistence and degradability**

Not Available

**12.3. Bioaccumulative potential**

Not Available

**12.4. Mobility in soil**

Not Available



## 12.5. Results of PBT and vPvB assessment

Not Available

## 12.6. Other adverse effects

Not Available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transport information

### Land Transport DOT (U.S.)

UN Number 1155  
Proper Shipping name Diethyl ether  
Transport Hazard Classes  
Class 3  
Hazard Label(s) 3  
Packing Group I  
Environmental hazard(s)  
Special precautions for user

### Sea Transport IMDG

UN Number 1155  
Proper Shipping name Diethyl ether  
Transport Hazard Classes  
Class 3  
Hazard Label(s) 3  
EMS- No. F-E, S-D  
Packing Group I  
Environmental hazard(s)  
Segregation Group  
Special precautions for user

## Air Transport IATA

UN Number 1155  
Proper Shipping name Diethyl ether  
Transport Hazard Classes  
Class 3  
Hazard Label(s) 3  
Packing Group I  
Environmental hazard(s)  
Special precautions for user

## SECTION 15: Regulatory information

### OSHA Hazards

Flammable, Irritant

### SARA 302 Extremely Hazardous Substances

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

### SARA 313 (TRI reporting)

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazardous Chemicals

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right-To-Know Substance List

Diethyl ether

### Pennsylvania Right-To-Know Hazardous substances

Diethyl ether

### New Jersey Worker and Community Right-To-Know Components

Diethyl ether

### California Proposition 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Inventory status:  
Canada DSL Inventory List: Listed  
US TSCA Inventory List: Listed  
EINECS, ELINCS or NLP: 200-467-2

## SECTION 16: Other information

### Full text of H-Statement(s) and R-phrase(s)

- H224 Extremely flammable liquid and vapour.
- H302 Harmful if swallowed.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.
  
- R12 Extremely flammable.
- R19 May form explosive oxides.
- R22 Harmful if swallowed.
- R66 Repeated exposure may cause skin drying or cracking.
- R67 Vapours may cause drowsiness and dizziness.

### Canadian Carcinogenicity hazard class

PHNOC hazard class

HHNOC hazard class

Biohazardous Infectious Materials hazard class

### DISCLAIMER

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. VWR International and its Affiliates shall not be held liable for any damage resulting from handling.