

**Ethyl Ether****BDH1121**

Version 1.3

Revision Date 03/25/2015

Print Date 05/08/2015

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Ethyl Ether

MSDS Number : 000000011717

Product Use Description : Solvent

Manufactured for : VWR International LLC  
Radnor Corporate Center  
Building One  
Suite 200  
100 Matsonford Road  
Radnor PA 19087

For more information call : (Monday-Friday, 8:00am-5:00pm)  
1-800-932-5000

In case of emergency call : (24 hours/day, 7 days/week)  
1-800-424-9300 (USA Only)  
**For Transportation Emergencies:**  
1-800-424-9300 (CHEMTREC - Domestic)  
1-613-996-6666 (CANUTEC - Canada)

**SECTION 2. HAZARDS IDENTIFICATION****Emergency Overview**

Form : liquid, clear

Color : colourless

Odor : sweet

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**Classification of the substance or mixture**

Classification of the substance or mixture : Flammable liquids, Category 1  
Acute toxicity, Category 4, Oral  
Eye irritation, Category 2B  
Specific target organ toxicity - single exposure, Category 3,  
Central nervous system

**GHS Label elements, including precautionary statements**

Symbol(s)



Signal word

: Danger

Hazard statements

: Extremely flammable liquid and vapour.  
Harmful if swallowed.  
Causes eye irritation.  
May cause drowsiness and dizziness.

Precautionary statements

: **Prevention:**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Wash skin thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/ eye protection/ face protection.**Response:**IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.  
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

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IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Call a POISON CENTER or doctor/ physician if you feel unwell.  
Rinse mouth.  
If eye irritation persists: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.  
Keep cool.  
Store locked up.

**Disposal:**

Dispose of contents/container in accordance with local, state & federal regulations.

**Carcinogenicity**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C<sub>4</sub>H<sub>10</sub>O

Chemical nature : Substance

Chemical Name	CAS-No.	Concentration
Diethyl ether	60-29-7	100.00 %

**SECTION 4. FIRST AID MEASURES**

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- Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.
- Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. First treatment with calcium gluconate paste. Call a physician immediately.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.
- Ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician.

#### Notes to physician

- Treatment : Treat symptomatically.

## SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Dry chemical  
Foam  
Cool closed containers exposed to fire with water spray.
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards during firefighting : Extremely flammable.  
Vapours may form explosive mixtures with air.  
Vapours are heavier than air and may spread along floors.  
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.  
In case of fire hazardous decomposition products may be produced such as:  
Carbon monoxide  
Carbon dioxide (CO<sub>2</sub>)  
May form explosive peroxides.

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Special protective equipment : Wear self-contained breathing apparatus and protective suit. for firefighters

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions : Wear personal protective equipment.  
Immediately evacuate personnel to safe areas.  
Keep people away from and upwind of spill/leak.  
Ensure adequate ventilation.  
Remove all sources of ignition.  
Do not swallow.  
Avoid breathing vapours, mist or gas.  
Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.  
Discharge into the environment must be avoided.  
Do not flush into surface water or sanitary sewer system.  
Prevent product from entering drains.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Methods for cleaning up : Ventilate the area.  
No sparking tools should be used.  
Use explosion-proof equipment.  
Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13).

**SECTION 7. HANDLING AND STORAGE****Handling**

- Handling : Wear personal protective equipment.  
Use only in well-ventilated areas.  
Keep container tightly closed.  
Do not smoke.

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Do not swallow.  
Avoid breathing vapours, mist or gas.  
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion : Keep away from fire, sparks and heated surfaces.  
Take precautionary measures against static discharges.  
Ensure all equipment is electrically grounded before beginning transfer operations.  
Use explosion-proof equipment.  
Keep product and empty container away from heat and sources of ignition.  
No sparking tools should be used.  
No smoking.

**Storage**

Requirements for storage areas and containers : Store in area designed for storage of flammable liquids. Protect from physical damage.  
Keep containers tightly closed in a dry, cool and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Protect from exposure to air/oxygen (peroxide formation).  
Keep away from heat and sources of ignition.  
Keep away from direct sunlight.  
Store away from incompatible substances.  
Container hazardous when empty.  
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : Use with local exhaust ventilation.  
Prevent vapour buildup by providing adequate ventilation during and after use.

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- Eye protection : Do not wear contact lenses.  
Wear as appropriate:  
Safety glasses with side-shields  
If splashes are likely to occur, wear:  
Goggles or face shield, giving complete protection to eyes
- Hand protection : Solvent-resistant gloves  
Gloves must be inspected prior to use.  
Replace when worn.
- Skin and body protection : Wear as appropriate:  
Solvent-resistant apron  
Flame retardant antistatic protective clothing.  
If splashes are likely to occur, wear:  
protective suit
- Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.  
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.  
Use NIOSH approved respiratory protection.
- Hygiene measures : When using, do not eat, drink or smoke.  
Wash hands before breaks and immediately after handling the product.  
Keep working clothes separately.  
Remove and wash contaminated clothing before re-use.  
Do not swallow.  
Avoid breathing vapours, mist or gas.  
Avoid contact with skin, eyes and clothing.

**Exposure Guidelines**

Components	CAS-No.	Value	Control parameters	Update	Basis
Diethyl ether	60-29-7	STEL : Short term exposure limit	(500 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values

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Diethyl ether	60-29-7	TWA : time weighted average	(400 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Diethyl ether	60-29-7	PEL : Permissi ble exposure limit	1,200 mg/m3 (400 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Diethyl ether	60-29-7	STEL : Short term exposure limit	1,500 mg/m3 (500 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Diethyl ether	60-29-7	TWA : time weighted average	1,200 mg/m3 (400 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	: liquid, clear
Color	: colourless
Odor	: sweet
pH	: Note: Not applicable
Melting point/freezing point	: -117.4 °C
Boiling point/boiling range	: 35 °C
Flash point	: -49 °F (-45 °C)



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Method: closed cup

Evaporation rate : 10  
Method: Compared to Butyl acetate.

Lower explosion limit : 1 %(V)

Upper explosion limit : 36 %(V)

Vapor pressure : 589 hPa  
at 20 °C(68 °F)  
717 hPa  
at 25 °C(77 °F)

Vapor density : 2.6 Note: (Air = 1.0)

Density : 0.713 g/cm<sup>3</sup> at 20 °C

Water solubility : 68.9 g/l

Ignition temperature : 160 °C

Molecular weight : 74.12 g/mol

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**SECTION 10. STABILITY AND REACTIVITY**

Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight. Protect from exposure to air/oxygen (peroxide formation). Protect against light.
Incompatible materials to avoid	: Oxidizing agents Strong acids Halogens Sulphur compounds May attack many plastics, rubbers and coatings.
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO <sub>2</sub> ) May form explosive peroxides.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Acute oral toxicity	: LD50: 1,215 mg/kg Species: Rat
Acute inhalation toxicity	: LC50: 73000 ppm Exposure time: 2 h Species: Rat
Acute dermal toxicity	: LD50: > 14.26 g/kg Species: Rabbit

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Skin irritation	: Species: Rabbit Result: slight irritation
Eye irritation	: Species: Rabbit Result: irritating
Genotoxicity in vitro	: Test Method: Ames test Metabolic activation: with and without metabolic activation Result: negative Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Further information	: Note: Solvent vapours have a narcotic effect if inhaled in high concentrations.

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity effects**

Toxicity to fish	: LC50: 2,560 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
	: LC50: 2,138 mg/l Exposure time: 14 d Species: guppy
Toxicity to bacteria	: EC50: 5,623 mg/l Exposure time: 15 min Species: Photobacterium phosphoreum

**Further information on ecology**

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**SECTION 13. DISPOSAL CONSIDERATIONS**

Disposal methods : Dispose of contents/ container in accordance with local, state, and federal regulations.

**SECTION 14. TRANSPORT INFORMATION**

**DOT** UN/ID No. : UN 1155  
Proper shipping name : Diethyl ether  
Class : 3  
Packing group : I  
Hazard Labels : 3

**IATA** UN/ID No. : UN 1155  
Description of the goods : Diethyl ether  
Class : 3  
Packaging group : I  
Hazard Labels : 3  
Packing instruction (cargo aircraft) : 361  
Packing instruction (passenger aircraft) : 351

**IMDG** UN/ID No. : UN 1155  
Description of the goods : Diethyl ether  
Class : 3  
Packaging group : I  
Hazard Labels : 3  
EmS Number : F-E, S-D  
Marine pollutant : no

**SECTION 15. REGULATORY INFORMATION****Inventories**

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- US. Toxic Substances Control Act : On TSCA Inventory
- Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory
- Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL.
- Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory
- Korea. Toxic Chemical Control Law (TCCL) List : On the inventory, or in compliance with the inventory
- Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory
- China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory
- New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

**National regulatory information**

- US. Drug Enforcement Administration (DEA) Listed Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2)) : Listed
- US. EPA CERCLA Hazardous Substances (40 CFR 302) : Diethyl ether 60-29-7  
: The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the

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CFR 302)	Reportable Quantity (RQ):	
	Reportable quantity: 100 lbs	
	: Diethyl ether	60-29-7
<b>SARA 302 Components</b>	: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.	
<b>SARA 313 Components</b>	: 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.	
<b>SARA 311/312 Hazards</b>	: Fire Hazard Acute Health Hazard Reactivity Hazard	
<b>CERCLA Reportable Quantity</b>	: 100 lbs	
<b>California Prop. 65</b>	: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.	
<b>Massachusetts RTK</b>	: Diethyl ether	60-29-7
<b>New Jersey RTK</b>	: Diethyl ether	60-29-7
<b>Pennsylvania RTK</b>	: Diethyl ether	60-29-7
<b>WHMIS Classification</b>	: B2: Flammable liquid This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.	

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**SECTION 16. OTHER INFORMATION**

	<b>HMIS III</b>	<b>NFPA</b>
Health hazard	: 2	1
Flammability	: 4	4
Physical Hazard	: 2	
Instability	:	1

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

**Further information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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