

# SAFETY DATA SHEET

## Ethyl Ether

### 1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

**Product Identifier:** High Purity Chemicals  
**Synonyms:** Diethyl ether; Ethyl oxide; Ether  
**Other means of identification:** CAS No. 60-29-7  
EINECS No. 200-467-2

**Recommended use of the chemical and restrictions on use:**  
General use solvent.

**Supplier Details:**

**Pharmco Products, Inc.**  
58 Vale Road, Brookfield,  
CT 06804, USA.  
Tel: 203.740.3471  
Fax: 203.740.3481  
CCN17213

**Pharmco Products, Inc.**  
1101 Isaac Shelby Drive, Shelbyville,  
KY 40065, USA.  
Tel: 502.232.7600  
Fax: 502.633.6100  
CCN17213

**Emergency Contact:** CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)



### 2. HAZARDS IDENTIFICATION

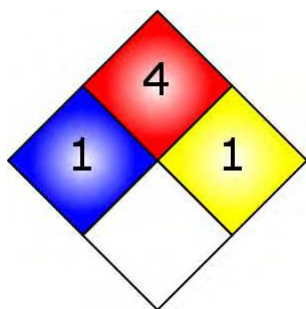
**OSHA Hazards:**

Flammable liquid, Target Organ Effect, Irritant, Harmful by ingestion

**Target Organs:**

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

**NFPA**



GHS label elements, including precautionary statements

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**Signal Word:**

DANGER!

**Hazard statement(s)**

H224	Extremely flammable liquid and vapour.
H302	Harmful if swallowed.
H336	May cause drowsiness or dizziness.

**Precautionary statement(s)**

P261	Avoid breathing dust/fumes/gas/mist/vapors.
P501	Dispose of contents and container to an approved waste disposal plant.
P270	Do not eat, drink or smoke when using this product.
P240	Ground/bond container and receiving equipment.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P210	Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
P233	Keep container tightly closed.
P330	Rinse Mouth.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P243	Take precautionary measures against static discharge.
P241	Use explosion-proof electrical, ventilating, and lighting equipment.
P242	Use only non-sparking tools.
P271	Use only outdoors or in a well-ventilated area.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves and eye and face protection.

**GHS Classification(s)**

Acute toxicity, Oral (Category 4)

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Flammable Liquids (Category 1)

Specific target organ toxicity - single exposure (Category 3)

**Other hazards which do not result in classification:**

**Potential Health Effects:**

**Potential to form explosive peroxides**

Organ	Description
Eyes	Can be harmful, causing irritation, to the eyes.
Ingestion	Can be harmful if ingested.
Inhalation	Can be harmful, causing irritation to the respiratory tract, if inhaled.
Skin	Can be harmful, causing irritation, dryness, and cracking, if absorbed through skin.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

<b>Chemical identity:</b>	Ethyl Ether
<b>Common name / Synonym:</b>	Diethyl ether; Ethyl oxide; Ether
<b>CAS number:</b>	60-29-7
<b>EINECS number:</b>	200-467-2
<b>ICSC number:</b>	0355
<b>RTECS #:</b>	KI5775000
<b>UN #:</b>	1155
<b>EC #:</b>	603-022-00-4

% Weight	Material	CAS
100	Ethyl Ether	60-29-7

### 4. FIRST AID MEASURES

#### General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### Skin

Wash skin with soap and copious amounts of water. Seek medical attention.

#### Inhalation

Remove person to fresh air. Seek medical attention. Give oxygen or artificial respiration as needed.

#### Eyes

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention.

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### **Ingestion**

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

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## **5. FIRE FIGHTING MEASURES**

### **Suitable (and unsuitable) extinguishing media:**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### **Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):**

Carbon oxides expected to be the primary hazardous combustion product.

### **Special protective equipment and precautions for firefighters:**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

### **Unusual Fire and Explosion Hazards:**

- Extremely flammable

#### **Flammable Properties**

##### **Classification**

OSHA/NFPA Class IA Flammable Liquid.

##### **Flash point**

-45 °C (-49 °F) - closed cup

##### **Autoignition temperature**

180 °C (356 °F)

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## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions, protective equipment and emergency procedures:**

Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

### **Environmental precautions:**

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

### **Methods and materials for containment and cleaning up:**

Highly flammable liquid. Eliminate all sources of ignition. All equipment used when handling this product must be grounded. A vapor suppressing foam may be used to reduce vapors. Do not touch or walk through spilled material. 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. Use clean non-sparking tools to collect absorbed material.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling:

Do not get on skin or in eyes. Do not inhale vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

### Conditions for safe storage, including any incompatibilities:

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

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters, e.g., occupational exposure limit values or biological limit values:

#### Occupational Exposure Limits

Component	Source	Type	Value	Note
Ethyl Ether	US (OSHA)	STEL	500 ppm, 1500 mg/m <sup>3</sup>	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
Ethyl Ether	US (OSHA)	TWA	400 ppm, 1200 mg/m <sup>3</sup>	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants

### Appropriate engineering controls:

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

### Individual protection measures, such as 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 ABEK (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. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Eye protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

#### Skin and body protection:

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

**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 ( <i>physical state, color, etc.</i> )	Liquid. Colorless, clear.
Odor	Specific data not available
Odor threshold	Specific data not available
pH	Specific data not available
Freezing point	-116 °C (-177 °F)
Initial boiling point and boiling range	35 °C (94 °F)
Flash point	-45 °C (-49 °F) - closed cup
Evaporation rate	Specific data not available
Flammability (solid, gas)	Flammable
Upper / Lower flammability or explosive limits	36.0 %(V) / 1.9 %(V)
Vapor pressure	563 hPa (422 mmHg) at 20 °C (68 °F)
Vapor Density	2.56
Relative Density	0.71 g/cm <sup>3</sup> at 20 °C (68 °F)
Solubility(ies)	Soluble
Partition coefficient n-octanol/water(ies)	log Pow: 0.89
Auto-ignition temperature	180 °C (356 °F)
Decomposition temperature	Specific data not available
Formula (ETHYL ETHER)	C <sub>4</sub> H <sub>10</sub> O
Molecular Weight (ETHYL ETHER)	74.12 g/mol

## 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Vapors may form explosive mixture with air.
Conditions to avoid (e.g., static discharge, shock or vibration)	Heat, flames, and sparks. Extreme temperatures and direct sunlight.
Incompatible materials	Strong acids, oxidizing agents
Hazardous decomposition products	Carbon oxides are expected to be, under fire conditions, the primary hazardous decomposition products.

## 11. TOXICOLOGICAL INFORMATION

- Ethyl Ether 60-29-7

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**Product Summary:**

Laboratory tests have shown mutagenic effects in animals. No data available for the reproductive or teratogenic effects of the product. No data available to designate the product as causing specific target organ toxicity through repeated exposure. No data available to designate product as an aspiration hazard.

**Acute Toxicity:**

LC50 (Inhalation)	Mouse	31,000 ppm	30 minutes
LD50 (Dermal)	Rabbit	>14.2 g/kg	
LD50 (Oral)	Rat	1,215 mg/kg	

**Irritation:**

**Eyes**

Rabbit - Mild eye irritation - Draize Test - 24 hours

**Respiratory or Skin Sensitization**

No data available

**Skin**

No data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

Inhalation - May cause drowsiness or dizziness. - Central Nervous System

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: 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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Other Hazards**

Organ	Description
Eyes	Can cause irritation to the eyes.
Ingestion	Can be harmful if ingested
Inhalation	Can be harmful, causing irritation to the respiratory tract, if inhaled. Vapors can cause drowsiness and dizziness.
Skin	Can be harmful, causing irritation, if absorbed through the skin.



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## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity (aquatic and terrestrial, where available):**

**Acute Fish Toxicity (ETHYL ETHER)**

LC50 / 96 hours Fathead Minnow - 2,560 mg/L

**Persistence and degradability:**

No data available

**Bioaccumulative potential:**

No data available

**Other adverse effects:**

No data available

## 13. DISPOSAL CONSIDERATIONS

**Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:**

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.

## 14. TRANSPORT INFORMATION

**Description of waste residues and information on their safe handling and methods of disposal:**

<b>UN number</b>	1155
<b>UN proper shipping name</b>	Diethyl ether
<b>Transport hazard class(es)</b>	3
<b>Packing group (if applicable)</b>	I

**Reportable Quantity**

100 lbs

**IMDG**

UN-Number: 1155 Class: 3 Packing Group: I

EMS-No: F-E, S-D

Proper shipping name: DIETHYL ETHER

Marine pollutant: No

**IATA**



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

## 15. REGULATORY INFORMATION

**Safety, health and environmental regulations specific for the product in question:**

### OSHA Hazards

Flammable liquid, Target Organ Effect, Irritant, Harmful by ingestion

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

### SARA 302 Components

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

### SARA 313 Components

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 Hazards

Acute Health Hazard  
Chronic Health Hazard  
Fire Hazard

### CERCLA

Ethyl Ether CAS-No. 60-29-7, RQ: 100 lbs

### Massachusetts Right To Know Components

Ethyl ether CAS-No. 60-29-7 Revision Date 2007-03-01

### Pennsylvania Right To Know Components

Ethyl ether CAS-No. 60-29-7 Revision Date 2007-03-01

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**New Jersey Right To Know Components**

Ethyl ether CAS-No. 60-29-7 Revision Date 2007-03-01

**California Prop 65 Components**

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

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**16. OTHER INFORMATION:  
INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS**

**Disclaimer**

PHARMCO-AAPER believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, PHARMCO-AAPER does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable. Information is correct to the best of our knowledge at the date of the MSDS publication.