

Material Safety Data Sheet

Ethyl ether
MSDS# 90868

Section 1 - Chemical Product and Company Identification

MSDS Name:

Ethyl ether

Catalog Numbers:

12399-0000, 12399-0010, 12399-0025, 12399-0050, 12399-0100, 17682-0000,
17682-0010, 17682-0025, 17682-0050, 32686-0000, 32686-0010, 32686-1000,
32686-2500, 36433-0000, 36433-0010, 36433-1000, 36433-5000, 41005-0000,
41005-0010, 41005-0500, 61507-0040, 61508-0010, 61508-0040, 61508-0200,
61508-5000, D/2400/17, D/2400/21, D/2400/25, D/2400/27, D/2400/DH25,
D/2400/PB08, D/2400/PB17, D/2450/15, D/2450/17, D/2450/21, D/2450/25,
D/2450/27, D/2450/DH25, D/2450/PB08, D/2450/PB15, D/2450/PB17, D/2455/17,
D/2500/08, D/2500/15, D/2500/17, D/2500/PB17, D/2502/08, D/2502/15,
D/2502/17, D/2503/15, D/2503/17, D/2506/15, D/2506/17, D/2506/PB17

Synonyms:

Ethane, 1,1'-oxybis-; Anesthetic ether; Diethyl ether; Ethoxyethane;
Diethyl oxide; Ethyl ether; Ether; Ethyl oxide.

Company Identification: Fisher Scientific UK

Bishop Meadow Road, Loughborough

Leics. LE11 5RG

For information in Europe, call:(01509) 231166

Emergency Number, Europe:01509 231166

Section 2 - Composition, Information on Ingredients

CAS#: 60-29-7
Chemical Name: Ethyl ether
%: >99
EINECS#: 200-467-2

Hazard Symbols:

XN F+

Risk Phrases:

12 19 22 66 67

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Extremely flammable. May form explosive peroxides. Harmful if
swallowed. Repeated exposure may cause skin dryness or cracking.
Vapours may cause drowsiness and dizziness. Hygroscopic (absorbs
moisture from the air). Air sensitive. Light sensitive.

Potential Health Effects

Eye:

Causes moderate eye irritation. Causes redness and pain.

Skin:

Causes skin irritation. May be absorbed through the skin. Repeated
or prolonged exposure may cause drying and cracking of the skin.

Ingestion:

Aspiration hazard. Symptoms may include: headache, excitement,
fatigue, nausea, vomiting, stupor, and coma. 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. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Inhalation:

Exposure to high concentrations may produce narcosis, nausea and loss of consciousness. Inhalation of vapors may cause drowsiness and dizziness.

Chronic:

Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure can cause psychic abnormalities such as anxiety, depression and excitability. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure to high vapor concentrations may cause eye injury. Repeated exposures may be habit forming.

Section 4 - First Aid Measures

Eyes:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin:

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.

Ingestion:

Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Persons with kidney disease, chronic respiratory disease, liver disease, or skin disease may be at increased risk from exposure to this substance. Alcoholic beverage consumption may enhance the toxic effects of this substance. Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information:

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. Extremely flammable. Material will readily ignite at room temperature. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Containers may explode in the heat of a fire. May form explosive peroxides. Will be easily ignited by heat, sparks or flame. May re-ignite after fire is extinguished. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or

alcohol-resistant foam. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

Section 6 - Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Remove all sources of ignition. Use a spark-proof tool. Place under an inert atmosphere. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Keep away from heat, sparks and flame. Handle under an inert atmosphere. If peroxide formation is suspected, do not open or move container. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Avoid breathing vapor.

Storage:

Keep away from sources of ignition. Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from light. Store under an inert atmosphere. Keep away from oxidizing agents. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Store at room temperature or below. Do not exceed 86F. Do not open unless contents are at 72F or below for at least 24 hours. Ethyl ether may form explosive peroxides on long standing or after exposure to air or light. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

CAS# 60-29-7:

United Kingdom, WEL - TWA: 100 ppm TWA; 310 mg/m³ TWA

United Kingdom, WEL - STEL: 200 ppm STEL; 620 mg/m³ STEL
 United States OSHA: 400 ppm TWA; 1200 mg/m³ TWA
 Belgium - TWA: 100 ppm TWA; 308 mg/m³ TWA
 Belgium - STEL: 200 ppm STEL; 616 mg/m³ STEL
 France - VME: 100 ppm VME; 308 mg/m³ VME
 France - VLE: 200 ppm VLCT; 616 mg/m³ VLCT
 Germany: 400 ppm TWA (exposure factor 1); 1200 mg/m³ TWA (exposure factor 1)
 Japan: 400 ppm OEL; 1200 mg/m³ OEL
 Malaysia: 400 ppm TWA; 1210 mg/m³ TWA
 Netherlands: 200 ppm STEL; 616 mg/m³ STEL
 Netherlands: 100 ppm MAC; 308 mg/m³ MAC
 Russia: 300 mg/m³ TWA (vapor)
 Russia: 900 mg/m³ STEL (vapor)
 Spain: 100 ppm VLA-ED; 308 mg/m³ VLA-ED
 Spain: 200 ppm VLA-EC; 616 mg/m³ VLA-EC
 Personal Protective Equipment

Eyes:

Wear chemical splash goggles.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid
 Color: APHA: 10 max
 Odor: sweetish odor - aromatic odor
 pH: Not available
 Vapor Pressure: 442 mm Hg @ 20 deg C
 Viscosity: 0.2448 cp @20 deg C
 Boiling Point: 34.6 deg C (94.28F)
 Freezing/Melting Point: -116.3 deg C (-177.34F)
 Autoignition Temperature: 180-190 deg C
 Flash Point: -45 deg C (-49.00 deg F)
 Explosion Limits: Lower:1.9 vol %
 Explosion Limits: Upper: 36.0 vol %
 Decomposition Temperature: Not available
 Solubility in water: Slightly soluble
 Specific Gravity/Density:
 Molecular Formula: C₄H₁₀O
 Molecular Weight: 74.12

Section 10 - Stability and Reactivity

Chemical Stability:

Under normal storage conditions, peroxidizable compounds can form and accumulate peroxides which may explode when subjected to heat or

shock. This material is most hazardous when peroxide levels are concentrated by distillation or evaporation.

Conditions to Avoid:

Light, ignition sources, exposure to air, electrical sparks, exposure to flame, heat.

Incompatibilities with Other Materials

Strong oxidizing agents, strong acids.

Hazardous Decomposition Products

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, peroxides.

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 60-29-7: KI5775000

LD50/LC50:

RTECS: CAS# 60-29-7: Draize test, rabbit, eye: 100 mg Moderate; Inhalation, mouse: LC50 = 31000 ppm/30M; Oral, mouse: LD50 = 1760 mg/kg; Oral, rat: LD50 = 1215 mg/kg; Skin, rabbit: LD50 = >20 mL/kg;.

Carcinogenicity:

Ethyl ether -

Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other:

See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity:

Fish: Fathead Minnow: LC50 = 2600 mg/L; 96 Hr; Flow-through bioassay Fish: Bluegill/Sunfish: LC50 >10000 mg/L; 96 Hr; Static bioassay Bacteria: Phytobacterium phosphoreum: EC50 = 5625 mg/L; 15 min; Microtox test

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

IATA

Shipping Name:	DIETHYL ETHER
Hazard Class:	3
UN Number:	1155
Packing Group:	I

IMO

Shipping Name:	DIETHYL ETHER
Hazard Class:	3
UN Number:	1155
Packing Group:	I

RID/ADR

Shipping Name:	DIETHYL ETHER
Hazard Class:	3
UN Number:	1155
Packing Group:	I

USA RQ: CAS# 60-29-7: 100 lb final RQ; 45.4 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F+

Risk Phrases:

- R 12 Extremely flammable.
- R 19 May form explosive peroxides.
- R 22 Harmful if swallowed.
- R 66 Repeated exposure may cause skin dryness or cracking.
- R 67 Vapours may cause drowsiness and dizziness.

Safety Phrases:

- S 9 Keep container in a well-ventilated place.
- S 16 Keep away from sources of ignition - No smoking.
- S 29 Do not empty into drains.
- S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 60-29-7: 1

Canada

CAS# 60-29-7 is listed on Canada's DSL List

US Federal

TSCA

CAS# 60-29-7 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date:

6/02/1999

Revision #8 Date

9/26/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

