

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 03/23/2010

Reviewed on 03/22/2010

1 Identification of substance:

Product details:

Product name: Diethyl ether

Stock number: 33224

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Diethyl ether (CAS# 60-29-7)

Identification number(s):

EINECS Number: 200-467-2

Index number: 603-022-00-4

3 Hazards identification

Hazard description:



Xn Harmful
F+ Extremely flammable

Information pertaining to particular dangers for man and environment

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

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	1
FIRE	4
REACTIVITY	1

Health (acute effects) = 1
Flammability = 4
Reactivity = 1

GHS label elements



Danger

2.6/1 - Extremely flammable liquid and vapour.



Warning

3.1/4 - Harmful if swallowed.

3.8/3 - May cause drowsiness or dizziness.

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Avoid release to the environment.

Take precautionary measures against static discharge.

Storage:

Store in a well-ventilated place.

4 First aid measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

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Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents** CO₂, sand, extinguishing powder. Do not use water.**For safety reasons unsuitable extinguishing agents** Water**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

Keep away from ignition sources.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Keep away from heat and direct sunlight.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Do not distill to dryness.

Explosive peroxides may form, handle container cautiously.

Storage**Requirements to be met by storerooms and receptacles:** Store in a cool location.**Information about storage in one common storage facility:** Store away from oxidizing agents.**Further information about storage conditions:**

Store in cool, dry conditions in well sealed containers.

Protect from heat and direct sunlight.

Avoid contact with air/oxygen (formation of peroxide).

Check container pressure periodically to prevent explosive peroxides.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Diethyl ether

ACGIH TLV ppm
400; 500-STEL

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Austria MAK 400
 Belgium TWA 400; 500-STEEL
 Denmark TWA 400
 Finland TWA 400; 500-STEEL
 France VME 400; 500-VLE
 Germany MAK 400
 Hungary TWA 300; 600-STEEL (skin)
 Ireland TWA 400; 500-STEEL
 Japan OEL 400
 Korea TLV 400; 500-STEEL
 Netherlands MAC-TGG 400
 Norway TWA 200
 Poland TWA 300; 1500-STEEL
 Russia TWA 400; 300-STEEL
 Sweden TWA 400; 500-STEEL
 Switzerland MAK-W 400; 800-KZG-W
 United Kingdom TWA 400; 500-STEEL
 USA PEL 400

Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Breathing equipment:

Use suitable respiratory protective device in case of insufficient ventilation.

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

Form: Liquid
Color: Colorless
Odor: Ether-like

Change in condition

Melting point/Melting range: -116°C (-177°F)
Boiling point/Boiling range: 34.6°C (94°F)
Sublimation temperature / start: Not determined

Flash point: -45°C (-49°F)**Ignition temperature:** 180°C (356°F)**Decomposition temperature:** Not determined

Danger of explosion: May form explosive peroxides.
 Do not distill to dryness.

Explosion limits:

Lower: 1.7 Vol %
Upper: 36 Vol %

Vapor pressure at 20°C (68°F): 587 hPa (440 mm Hg)**Density at 20°C (68°F):** 0.7134 g/cm³**Solubility in / Miscibility with****Water at 20°C (68°F):** 69 g/l**Viscosity:****dynamic at 20°C (68°F):** 0.23 mPas**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Oxidizing agents

Halogens

Interhalogens

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Dangerous reactions

May form explosive peroxides.

Reacts with oxidizing agents

Reacts violently with nitric acid (HNO₃).**Dangerous products of decomposition:** Carbon monoxide and carbon dioxide**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	1215 mg/kg (rat)
	LDLo	260 mg/kg (man)
Dermal	LD50	>20 mL/kg (rabbit)
Inhalative	LCLo/30M	31000 ppm/30M (mouse)
Irritation of skin	mild	360 mg (rabbit)
	severe	50 mg/24H (guinea pig)

Primary irritant effect:**on the skin:** Generally the product does not irritate the skin.**on the eye:** Causes mild irritant effect.**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:**

Diethyl ether is a depressant of the central nervous system and is capable of causing intoxication, drowsiness, stupor and unconsciousness. Severe exposure may cause respiratory failure and death. On contact it may irritate the eyes.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:**Additional ecological information:****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations**Product:****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**14 Transport information****DOT regulations:****Hazard class:**

3

Identification number:

UN1155

Packing group:

I

Proper shipping name (technical name): DIETHYL ETHER (ETHYL ETHER)**Label**

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Land transport ADR/RID (cross-border)**ADR/RID class:**

3 (F1) Flammable liquids

Danger code (Kemler):

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UN-Number: 1155
Packaging group: I
Description of goods: 1155 DIETHYL ETHER (ETHYL ETHER)

Maritime transport IMDG:

IMDG Class: 3
UN Number: 1155
Label: 3
Packaging group: I
Marine pollutant: No
Proper shipping name: DIETHYL ETHER (ETHYL ETHER)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 1155
Label: 3
Packaging group: I
Proper shipping name: DIETHYL ETHER (ETHYL ETHER)

UN "Model Regulation": UN1155, DIETHYL ETHER (ETHYL ETHER), 3, I**15 Regulations****Product related hazard informations:****Hazard symbols:**

Xn Harmful
 F+ Extremely flammable

Risk phrases:

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

Safety phrases:

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

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

Information about limitation of use: For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Zachariah Holt

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association

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IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

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