SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 10, 2017

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1. Identification

1.1 GHS Product identifier

Product name	2-(2-methoxyethoxy)ethanol

1.2 Other means of identification

Product number	-
Other names	Methyl Carbitol

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Fuels and fuel additives,Functional fluids (closed systems),Intermediates,Paint additives and coating additives not described by other categories,Pigments,Solvents (which become part of product formulation or mixture)
Uses advised against	no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Reproductive toxicity, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Warning
Hazard statement(s)	none
Precautionary statement(s)	
Prevention	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response	P308+P313 IF exposed or concerned: Get medical advice/ attention.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-(2-methoxyethoxy)ethanol	2-(2-methoxyethoxy)ethanol	111-77-3	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth.

4.2 Most important symptoms/effects, acute and delayed

Liquid may irritate eyes. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

First Aid: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. If swallowed: Call poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice. If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further advice. If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. NOTE TO PHYSICIAN: This product is a petroleum distillate. Vomiting may cause aspiration pneumonia. /Phillips Fuel Additive 56 MB/

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5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Wear self contained breathing apparatus for fire fighting if necessary.

5.2 Specific hazards arising from the chemical

This chemical is combustible.

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.

6.3 Methods and materials for containment and cleaning up

Use personal protective equipment. Avoid breathing 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.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants. Ventilation along the floor.Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store under inert gas. Hygroscopic.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

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9. Physical and chemical properties

Physical state	liquid
Colour	Colorless liquid
Odour	Slight or pleasant smell /Solvents/
Melting point/ freezing	-23°C(lit.)

point	
Boiling point or initial boiling point and boiling range	194°C(lit.)
Flammability	Combustible.
Lower and upper explosion limit / flammability limit	Lower= 1.2%
Flash point	84°C
Auto-ignition temperature	221°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	3.48 mPa.s (=cPa) at 25°C
Solubility	In water:Miscible
Partition coefficient n-octanol/water (log value)	log Kow = -1.18 (est)
Vapour pressure	0.2 mm Hg (20 °C)
Density and/or relative density	1.023g/mLat 25°C(lit.)
Relative vapour density	4.14 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

CombustibleDIETHYLENE GLYCOL MONOMETHYL ETHER is a ether-alcohol derivative. The ether being relatively unreactive. Flammable and/or toxic gases are generated by the combination of alcohols with alkali metals, nitrides, and strong reducing agents. They react with oxoacids and carboxylic acids to form esters plus water. Oxidizing agents convert alcohols to aldehydes or ketones. Alcohols exhibit both weak acid and weak base behavior. They may initiate the

polymerization of isocyanates and epoxides.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Contact of the solid hypochlorite with glycerol, diethylene glycol monomethyl ether or phenol causes ignition within a few min, accompanied by irritant smoke, especially with phenol (formation of chlorophenols).

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

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11. Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 5500 mg/kg bw
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: Lepomis macrochirus (bluegill sunfish); Conditions; static bioassay in fresh water at 23°C, mild aeration applied after 24 hr; Concentration: 7500 ppm for 96 hr
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) age <24 hr; Conditions: freshwater, flow through; Concentration: 930000 ug/L for 48 hr; Effect: intoxication, immobilization /99.9% purity
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Aerobic biological screening studies, which utilized settled waste water, sewage or activated sludge for inoculum, have demonstrated that diethylene glycol monomethyl ether should biodegrade in the environment(1-5). Diethylene glycol monomethyl ether showed losses of 0, 21, and 66% of the theoretical BOD when incubated at 20°C for 5, 10, and 20 days, respectively(1). Other 5 day BOD tests at 20°C, resulted in the loss of 5%(2) and 9%(3) of the theoretical BOD. A study using activated sludge gave a degradation rate for diethylene glycol monomethyl ether of 0.26/hour(4) giving a half-life of 2.7 hours(SRC). Biodegradation half-lives of 2-16 days have been reported for diethylene glycol monomethyl ether(5).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for diethylene glycol monomethyl ether(SRC), using an estimated log Kow of -1.18 and a regression-derived

equation(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of diethylene glycol monomethyl ether can be estimated to be 1(SRC). According to a classification scheme(2), this estimated Koc value suggests that diethylene glycol monomethyl ether is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN1760 IMDG: UN1760 IATA: UN1760

14.2 UN Proper Shipping Name

ADR/RID: CORROSIVE LIQUID, N.O.S.
IMDG: CORROSIVE LIQUID, N.O.S.
IATA: CORROSIVE LIQUID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
2-(2-methoxyethoxy)ethanol	2-(2-methoxyethoxy)ethanol	111-77-3	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16. Other information

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website:

http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

- ECHA - European Chemicals Agency, website: https://echa.europa.eu/
