

SAFETY DATA SHEET

Creation Date 11-Jun-2014

Revision Date 17-Jan-2018

Revision Number 4

1. Identification

Product Name Ethylene Glycol Monomethyl Ether (Certified)

Cat No. : E182-4; E182-20; E182-500

CAS-No 109-86-4

Synonyms EGME; Ethylene glycol methyl ether; Methyl Cellosolve

Recommended Use Laboratory chemicals.

Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300

CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|--|-------------|
| Flammable liquids | Category 3 |
| Acute oral toxicity | Category 4 |
| Acute dermal toxicity | Category 4 |
| Acute Inhalation Toxicity - Vapors | Category 4 |
| Reproductive Toxicity | Category 1B |
| Specific target organ toxicity (single exposure) | Category 1 |
| Target Organs - Immune system. | |
| Specific target organ toxicity - (repeated exposure) | Category 2 |
| Target Organs - Thymus. | |

Label Elements

Signal Word

Danger

Hazard Statements

Flammable liquid and vapor

Harmful if swallowed

Harmful in contact with skin

Harmful if inhaled

May damage fertility. May damage the unborn child

Causes damage to organs

May cause damage to organs through prolonged or repeated exposure



Precautionary Statements

Prevention

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Use only outdoors or in a well-ventilated area
 Do not breathe dust/fume/gas/mist/vapors/spray
 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
 Keep cool

Response

IF exposed: Call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Call a POISON CENTER or doctor/physician if you feel unwell

Skin

Call a POISON CENTER or doctor/physician if you feel unwell
 Wash contaminated clothing before reuse
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth

Fire

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

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

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

WARNING. Cancer and Reproductive Harm - <https://www.p65warnings.ca.gov/>.

3. Composition/Information on Ingredients

| Component | CAS-No | Weight % |
|------------------|----------|----------|
| 2-Methoxyethanol | 109-86-4 | > 98 |

4. First-aid measures

General Advice

If symptoms persist, call a physician.

| | |
|--|---|
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| Inhalation | Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. |
| Most important symptoms and effects | Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | 38 °C / 100.4 °F |
| Method - | No information available |
| Autoignition Temperature | 285 °C / 545 °F |
| Explosion Limits | |
| Upper | 19.8 vol % |
| Lower | 1.8 vol % |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂) peroxides Methanol

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

| | | | |
|---------------|---------------------|--------------------|-------------------------|
| Health | Flammability | Instability | Physical hazards |
| 3 | 2 | 1 | N/A |

6. Accidental release measures

| | |
|---|--|
| Personal Precautions | Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. |
| Environmental Precautions | Should not be released into the environment. |
| Methods for Containment and Clean Up | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. |

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
|------------------|----------------------|--|---|---|
| 2-Methoxyethanol | TWA: 0.1 ppm Skin | (Vacated) TWA: 25 ppm (Vacated) TWA: 80 mg/m ³ Skin TWA: 25 ppm TWA: 80 mg/m ³ | IDLH: 200 ppm TWA: 0.1 ppm TWA: 0.3 mg/m ³ | TWA: 25 ppm TWA: 80 mg/m ³ STEL: 35 ppm STEL: 120 mg/m ³ |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|----------------------------------|------------------------------|
| Physical State | Liquid |
| Appearance | Clear |
| Odor | Ether |
| Odor Threshold | No information available |
| pH | No information available |
| Melting Point/Range | -85 °C / -121 °F |
| Boiling Point/Range | 124 °C / 255.2 °F @ 760 mmHg |
| Flash Point | 38 °C / 100.4 °F |
| Evaporation Rate | 0.53 (Butyl Acetate = 1.0) |
| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | 19.8 vol % |
| Lower | 1.8 vol % |
| Vapor Pressure | 9.5 mmHg @ 25 °C |
| Vapor Density | 2.62 (Air = 1.0) |

| | |
|--|--------------------------|
| Specific Gravity | .9600 |
| Solubility | miscible |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temperature | 285 °C / 545 °F |
| Decomposition Temperature | No information available |
| Viscosity | No information available |
| Molecular Formula | C3H8O2 |
| Molecular Weight | 76.09 |
| VOC Content(%) | 98 |

10. Stability and reactivity

| | |
|---|---|
| Reactive Hazard | None known, based on information available |
| Stability | Light sensitive. Air sensitive. Reacts with air to form peroxides. heat sensitive. |
| Conditions to Avoid | Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Excess heat. Exposure to light. Exposure to air over prolonged period. |
| Incompatible Materials | Strong oxidizing agents, Acids, Bases, Copper alloys, copper |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂), peroxides, Methanol |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. May form explosive peroxides. |

11. Toxicological information

Acute Toxicity

Product Information Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|------------------|---------------------------|------------------------------|-----------------------------|
| 2-Methoxyethanol | LD50 = 2370 mg/kg (Rat) | LD50 = 1280 mg/kg (Rabbit) | LC50 = 1478 ppm (Rat) 7 h |

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|------------------------|--|
| Irritation | No information available |
| Sensitization | No information available |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component | CAS-No | IARC | NTP | ACGIH | OSHA | Mexico |
|------------------|----------|------------|------------|------------|------------|------------|
| 2-Methoxyethanol | 109-86-4 | Not listed | Not listed | Not listed | Not listed | Not listed |

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity Teratogenic effects have occurred in experimental animals.

STOT - single exposure Immune system
STOT - repeated exposure Thymus

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|------------------|------------------|--|------------|---|
| 2-Methoxyethanol | Not listed | LC50: > 500 mg/L, 96h static (Leuciscus idus) LC50: = 16000 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 10000 mg/L, 96h static (Lepomis macrochirus) LC50: = 9650 mg/L, 96h static (Lepomis macrochirus) | Not listed | EC50: > 10000 mg/L, 24h (Daphnia magna) |

Persistence and Degradability Soluble in water Persistence is unlikely based on information available. Miscible with water

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

| Component | log Pow |
|------------------|---------|
| 2-Methoxyethanol | -0.85 |

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1188
 Proper Shipping Name ETHYLENE GLYCOL MONOMETHYL ETHER
 Hazard Class 3
 Packing Group III

TDG

UN-No UN1188
 Proper Shipping Name ETHYLENE GLYCOL MONOMETHYL ETHER
 Hazard Class 3
 Packing Group III

IATA

UN-No UN1188
 Proper Shipping Name ETHYLENE GLYCOL MONOMETHYL ETHER
 Hazard Class 3
 Packing Group III

IMDG/IMO

UN-No UN1188
 Proper Shipping Name ETHYLENE GLYCOL MONOMETHYL ETHER
 Hazard Class 3
 Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

| Component | TSCA | DSL | NDSL | EINECS | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| 2-Methoxyethanol | X | X | - | 203-713-7 | - | | X | X | X | X | X |

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

| Component | TSCA 12(b) |
|------------------|------------|
| 2-Methoxyethanol | Section 5 |

SARA 313

| Component | CAS-No | Weight % | SARA 313 - Threshold Values % |
|------------------|----------|----------|-------------------------------|
| 2-Methoxyethanol | 109-86-4 | > 98 | 1.0 |

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

| Component | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|------------------|-----------|-------------------------|-------------------------|
| 2-Methoxyethanol | X | | - |

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

California Proposition 65 This product contains the following proposition 65 chemicals

| Component | CAS-No | California Prop. 65 | Prop 65 NSRL | Category |
|------------------|----------|------------------------------------|--------------|---------------|
| 2-Methoxyethanol | 109-86-4 | Developmental Male Reproductive | - | Developmental |

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|------------------|---------------|------------|--------------|----------|--------------|
| 2-Methoxyethanol | X | X | X | X | X |

U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Moderate risk, Grade 2

16. Other information

| | |
|-------------------------|---|
| Prepared By | Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com |
| Creation Date | 11-Jun-2014 |
| Revision Date | 17-Jan-2018 |
| Print Date | 17-Jan-2018 |
| Revision Summary | This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). |

Disclaimer

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

End of SDS