



5515 North Service Rd. #306
Burlington, Ontario L7L 6G4

Phone: 905-337-7411
Fax: 905-337-1686

megaloid.ca



Responsible Care®
Our commitment to sustainability.



Responsible Distribution Canada
Leaders in Chemicals and Ingredients

1. IDENTIFICATION

Name: Glycol Ether EM

Synonyms: 2- methoxyethanol; ethylene glycol (mono) methyl ether; EM, EGME

Product Uses: solvent

Supplier: Megaloid Laboratories Limited

Identifier: 5515 North Service Road # 306
Burlington, ON L7L 6G4

EMERGENCY INFORMATION: Call CHEMTREC - (800) 424-9300
(CCN# 693764)

2. HAZARD IDENTIFICATION:

| GHS Class <i>(category)</i> | Flammable <i>(3)</i> | Acute oral <i>(4)</i> | Acute skin <i>(4)</i> | Acute inhalation <i>(4)</i> | Reproduction <i>(1B)</i> | STOT <i>(3)</i> |
|---------------------------------------|------------------------------------|---------------------------------|--|---------------------------------------|---|--|
| Signal Word | WARNING | WARNING | WARNING | WARNING | DANGER | WARNING |
| Hazard Statements | Flammable liquid and vapour (H226) | Harmful if swallowed (H302) | Harmful if in contact with skin (H312) | Harmful if inhaled (H332) | May damage fertility and the unborn child (H360) - by skin oral or inhalation | May damage blood forming system causing anaemia (H373) - by prolonged inhalation |

Hazardous Pictograms



GHS Precautionary Statements for Labelling

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| | |
|-----------------------|--|
| Prevention: | |
| P210 | Keep away from heat, sparks, open flames, and hot surfaces – No Smoking |
| P240 | Ground and bond container and receiving equipment. |
| P241 | Use explosion-proof electrical, ventilating, and lighting equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P264 | Wash hands thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| Response: | |
| P301+P312+P330 | IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| P304+P340+P312 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. |
| P307+P311 | IF exposed: Call a POISON CENTER or doctor/ physician. |
| P363 | Wash contaminated clothing before reuse. |
| P370+P378 | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |
| Storage: | |
| P403+P235 | Store in a well-ventilated place. Keep cool. |
| P405 | Store locked up. |
| Disposal: | |
| P501 | Dispose of contents/ container to an approved waste disposal plant |

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name: | CAS No. | % | Other Identifiers |
|-----------------------|----------------|----------|--------------------------|
| 2-Methoxyethanol | 109-86-4 | 100 | EC# 203-713-7 |

4. FIRST-AID MEASURES

Inhalation

Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.

Skin Contact

Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.

Eye Contact

Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.

Ingestion

Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Most important symptoms and effects, both acute and delayed

Flammable liquid and vapour. Harmful if swallowed. Harmful if in contact with skin. Harmful if inhaled. May damage fertility and the unborn child by skin oral or inhalation. May damage blood forming system causing anaemia by prolonged inhalation.

Notes to physician

Treat symptomatically

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water

Unsuitable Extinguishing Media

Water jet spreads flames

Specific Hazards Arising from the Product

Carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments
Cannot accumulate a static charge on agitation or pumping.

Special Protective Equipment and Precautions for Fire-fighters

Firefighters must wear SCBA.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Remove ignition sources. Avoid static electric charges. No open flames. No smoking. Ensure adequate ventilation. Use personal protective equipment. Avoid breathing vapours, mist or gas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Evacuate personnel to safe areas.

Methods and materials for containment and cleaning up

Dyke to control spillage and prevent environmental contamination. Ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal.

NOTE: If spill is extensive, and ventilation is inadequate, consider wearing an air-supplied respirator.

Serious Fire Potential:
blanket spill with foam as a precaution against accidental ignition. Take extreme care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.

7. HANDLING & STORAGE

Precautions for Safe Handling

Empty containers may contain a flammable or explosive vapour. Always ensure that containers, whether empty or full, are tightly sealed unless in use.

Evaporation concentrates any peroxides which may have formed, creating the risk of explosion. If recycling the product by distillation, never evaporate to dryness.

Conditions for Safe Storage

Although the flash point is above ambient temperature in all but the hottest climates, grounding or bonding all equipment to prevent static discharge is recommended.

This product reacts with oxygen in the air on prolonged storage to form explosive peroxides. If prolonged storage of a part container is anticipated, flush headspace with dry nitrogen gas prior to sealing.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

| | | | |
|----------------------|--------------------------------------|---------------------|------------|
| Ontario TWAEV | 0.1ppm / 0.3mg/m ³ (skin) | Ontario STEV | Not listed |
| ACGIH TLV | 0.1ppm / 0.3mg/m ³ (skin) | ACGIH STEL | Not listed |
| OSHA PEL | 25ppm / 80mg/m ³ (skin) | OSHA STEL | Not listed |

| | |
|--------------------|---|
| Ventilation | Mechanical ventilation may be required to maintain airborne titre below regulated limits |
| Hands | Wear butyl rubber or “Tychem TM” or “Tychem TK” gloves – <i>consult supplier to confirm suitability</i> |
| Eyes | Safety glasses with side shields – <i>always protect the eyes.</i> |
| Clothing | Wear impermeable (above) apron, boots, & long sleeves if there is any likelihood of splashing. |

9. PHYSICAL & CHEMICAL PROPERTIES

| | |
|--|--|
| Odour & Appearance | Mild, pleasant ether odour and colourless |
| Odour threshold | 2.4 ppm (7.4 mg/m ³) (2-Methoxyethanol) |
| pH | 5 - 7 (@ 25 Deg. C) |
| Melting point/Freezing point | -85 °C (-121 °F) (melting) |
| Initial boiling point/boiling range | 124 °C (255 °F) |
| Flash point | 37 °C (99 °F) (closed cup) |
| Evaporation rate | 0.5 (n-butyl acetate = 1) |
| Flammability (solid; gas) | Not available |
| Lower flammable/explosive limit | 1.8% |
| Upper flammable/explosive limit | 14% |
| Vapour pressure | 0.83 kPa (6.2 mm Hg) at 20 °C (68 °F) |
| Vapour density (air=1) | 2.6 |
| Relative density(water=1) | 0.965 at 20 °C (68 °F) |
| Solubility | Very soluble in water; common organic solvents. |
| Partition coefficient – n-octanol/water | -0.75 |
| Auto ignition temperature | 285 °C (545 °F) |
| Decomposition temperature | Not applicable |
| Viscosity | 2.05 mm ² /s at 20 °C (68 °F) (kinematic); 1.7 centipoises at 25 °C (dynamic) |
| Physical State | Liquid |
| Molecular Formula | C ₃ -H ₈ -O ₂ |
| Molecular Weight | 76 grams per mole |
| Conversion Factor | 1 ppm=3.11 mg/m ³ |

10. STABILITY AND REACTIVITY

Reactivity

Dangerously reactive with strong oxidising agents; strong acids, acid anhydrides or alkalis may cause vigorous reaction. Also attacks certain plastics

Chemical Stability

Stable; will not polymerize.

Possibility of Hazardous Reactions

No data available

Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

Incompatible materials

Aluminum, Magnesium, Alkalis, Strong oxidizing agents

Hazardous decomposition products

Peroxides, acetaldehyde and methanol.

Sensitive to Mechanical Impact

No

11. TOXICITY

| Acute Toxicity | |
|-------------------------------------|---|
| Skin Contact | Not a skin irritant. |
| Skin Absorption | Some skin absorption; no toxic effects likely by this route. |
| Eye Contact | Human experience shows very mild irritation. |
| Inhalation | May cause dizziness, drowsiness, confusion, nausea. |
| Ingestion | Headache, nausea, confusion, agitation, muscle weakness, increased heart rate, deep breathing, metabolic acidosis & cyanosis (blue skin tint) – not a route of industrial exposure. |
| LD₅₀ (oral) | 2370, 2460 & 3250mg/kg (rat), 2560 & 2800mg/kg (mouse), 890mg/kg (rabbit), 950mg/kg (guinea pig) |
| LD₅₀ (skin) | 1280, 1300, 1340, 2000 & 3930mg/kg (rabbit) |
| LC₅₀ (inhalation) | 1960 & 4600ppm (mouse), >4000 & >5000ppm (rat) |

11. TOXICITY, CONTINUED**General**

May cause headache, lethargy, poor co-ordination, weakness, altered personality, anemia,

decreased white blood cell count, and bone marrow damage; some of these were caused by skin exposure alone.

Carcinogen

Not a carcinogen. IARC: Not specifically listed. A1 – Confirmed human carcinogen. ACGIH®: Not specifically designated. NTP: Not specifically listed. OSHA: Not specifically listed.

Key to Abbreviations

ACGIH® = American Conference of Governmental Industrial Hygienists. IARC = International Agency for Research on Cancer. NTP = National Toxicology Program. OSHA = US Occupational Safety and Health Administration.

Reproductive Effect

Development of Offspring

Several epidemiological studies suggest that Glycol Ether EM may be a teratogen by skin & by inhalation exposure

Sexual Function and Fertility

Fetal malformation, decreased fertility and low sperm count have been seen in rodents at doses causing no maternal symptoms; several reports do not consider Glycol Ether EM to be a reproductive effector in rodents, several epidemiological studies show reproductive effects in humans

Mutagen

No known effect on humans or animals.

12. ECOLOGICAL INFORMATION

| | |
|--|---|
| Bioaccumulation | Not a bioaccumulator; readily eliminated from the body (~70% within 48hr). |
| Biodegradation | Biodegrades readily & rapidly in the presence of oxygen; 73-97% in 8 to 14 days – several tests; anaerobic biodegradation of 99% in 21 days has been recorded |
| Abiotic Degradation | Reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 11.5, 17, & 35hours. |
| Mobility in soil, water | Sufficiently water soluble to move readily in soil & water. |
| Aquatic Toxicity | |
| LC₅₀ (Fish, 96hr) | 14,980mg/litre (Salmo gairdneri), 9650mg/litre (Lepomis macrochirus & Menidia beryllina), 16,000mg/litre (Oncorhynchus mykiss), >10,000mg/litre (Lepomis macrochirus) |
| EC₅₀ (Crustacea, 48hr) | >10,000mg/litre (Scenedesmus quadricauda), 12,100mg/litre (Pseudokirchnerella subcapitata) |
| EC₅₀ (Algae) | >10,000mg/litre (Scenedesmus quadricauda), 12,100mg/litre (Pseudokirchnerella subcapitata) |
| LC₅₀ (Bacteria) | 3000mg/litre (“domestic activated sewage sludge”) |

13. DISPOSAL

Waste Disposal

Do not flush to sewer, recycle solvent if possible, local regulations may permit disposal in sanitary landfill, may be incinerated in approved facility after mixing with a suitable flammable waste

Containers

Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.

Pails must be vented and thoroughly dried prior to crushing and recycling.

IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs).

Steel containers must be inspected, pressure tested & recertified every 5 years.

***Never cut, drill, weld or grind on or near this container,
even if empty***

14. TRANSPORT CLASSIFICATION

| | | | |
|----------------------|----------------------------------|----------------------------------|---|
| Canada TDG | UN / PIN # | 1188 |  |
| AND | Shipping Name | Ethylene glycol monomethyl ether | |
| U.S.A. 49 CFR | Class & Packing Group | 3, III | |

| | |
|---|------------------------------|
| Marine Pollutant ERAP Required (CA only) | Not a marine pollutant No |
| Emergency Response Guide No. | 127 |
| Reportable Quantity (RQ – USA only) | None |

15. REGULATIONS

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|----------------------|--------------|
| Canada DSL | On Inventory |
| U.S.A. TSCA | On Inventory |
| Europe EINECS | On Inventory |

Canada Regulations:

**CEPA – National Pollutant Release Inventory
Part 1A**

U.S.A. Regulations:

Immediately Dangerous to Life or Health: 200 ppm

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 25 ppm (80 mg/cu m), skin designation.

NIOSH Recommendations: NIOSH recommends that 2-methoxyethanol (2ME) ... be regarded in the workplace as having the potential to cause adverse reproductive effects in male and female workers. These recommendations are based on the results of several recent studies that have demonstrated dose related embryotoxicity and other reproductive effects in several species of animals exposed by different routes of administration. Appropriate controls should be instituted to minimize worker exposure to 2ME. NIOSH suggests that producers, distributors, and users of 2ME give this information to their workers and customers and that trade associations, and unions inform their members. Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.1 ppm (0.3 mg/cu m), skin.

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 0.1 ppm, skin. Excursion Limit

Recommendation: Excursions in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded.

Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Ethylene glycol monomethyl ether is produced, as an intermediate or a final product, by process units covered under this subpart.

FIFRA Requirements: As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA '88 were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Methoxyethanol is found on List C. Case No: 3036; Pesticide type: fungicide, antimicrobial; Case Status: No products containing the pesticide are actively registered. Therefore, we are characterizing the case as "cancelled." Under FIFRA, pesticide producers may voluntarily cancel their registered products. EPA also may cancel pesticide registrations if registrants fail to pay required fees or make/meet certain reregistration commitments, or if EPA reaches findings of unreasonable adverse effects.; Active ingredient (AI): methoxyethanol; Data Call-in (DCI) Date(s): 09/30/1992; AI Status: The active ingredient is no longer contained in any registered products ... "cancelled."

16. OTHER INFORMATION

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|--------------------|-----------------|-----------------------|----------------------|
| NFPA RATING | Health 1 | Flammability 2 | Instability 1 |
|--------------------|-----------------|-----------------------|----------------------|

Prepared for Megaloid Laboratories **by** Rob Cangiano
Preparation Date: October 2002
Revision Dates: Oct 2005, Oct 2008, Nov 2011, Nov 2014, Nov. 2017, March 2020

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| Key to Abbreviations | <p>ACGIH® = American Conference of Governmental Industrial Hygienists AIHA® = AIHA® Guideline Foundation HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration RTECS® = Registry of Toxic Effects of Chemical Substances</p> |
| References | <p>CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).</p> |
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