

Material Safety Data Sheet (MEG)

1. Product and company identification

- a) Product Name: Monoethylene Glycol
- b) Recommended use of the chemical and restrictions on use: Not available
- c) Manufacturer/Supplier/Distributor Information
 - Name: Onsan Plant, Korea Petrochemical Ind, Co.,Ltd.
 - Address: 134 Onsan-ro, Onsan-eup, Ulju-gun, Ulsan 689-892, Korea
 - Emergency phone number: 82-52-231-1224, 82-52-231-1119(24 hour)

2. Hazards identification

- a) Hazard·Risk Classification:
 - REPRODUCTIVE TOXICITY: CATEGORY 1B
 - SPECIFIC TARGET ORGAN TOXICITY(SINGLE EXPOSURE): CATEGORY 1
 - SPECIFIC TARGET ORGAN TOXICITY(REPEATED EXPOSURE): CATEGORY 1

- b) Label elements including precautionary statements

- Symbol:



- Signal Word: Danger

- Hazard·Risk Statement:

H360 May damage fertility or the unborn child

H370 Causes damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

- Precautionary Statement:

- Prevention

P201 Obtain special instructions before use

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P281 Use personal protective equipment as required.

- Response

P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P314 Get medical advice/attention if you feel unwell.

P321 Specific treatment (see ... on this label).

- Storage

P405 Store locked up

- Disposal

P501 Dispose of contents/container to (in accordance with local/regional/national/international regulation)

c) Other Hazard·Risk which are not included in the classification criteria

NFPA: HEALTH = 2, FIRE = 1, REACTIVITY = 0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS number	Content (%)
Monoethylene Glycol	1, 2-Dihydroxyethane 1, 2-Ethandiol	107-21-1	100

4. First aid measures

a) Eye contact:

- Flush eyes with large amounts of water for at least 20 minutes.
- Get medical attention immediately

b) Skin contact:

- Wash with large amounts of water for at least 20 minutes.
- Prevent the spread of contaminated sites
- Remove contaminated clothing and shoes immediately.
- If skin disorder develops, get medical attention.

c) Inhalation:

- Move from exposed area to fresh air area
- Get medical attention immediately.

d) Ingestion:

- Do not give artificial respiration, use proper respiratory medical equipment.

e) Most important symptoms/effects, acute and delayed: Not available

f) Indication of immediate medical attention and notes for physician:

- The medical personnel must be aware of the material and take protective measures.

5. Fire-Fighting measures

a) Suitable (and unsuitable) Extinguishing media:

- Suitable extinguishing media: dry sand, alcohol foam, carbon dioxide, water spray.

b) Specific hazards arising from the chemical:

- Very toxic gas can be caused by thermal decomposition or combustion.
- Thermal decomposition product: corrosive and toxic fumes.
- Containers may explode when heated.
- Not easily ignited

c) Special protective equipment and precautions for fire-fighters:

- Cool containers with water spray until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.
- Do not get close to the ends of containers.
- Move containers from fire area if it can be done without risk.
- Dig a hold area such as lagoon, pond or pit for containment.
- Use unmanned fire fighting equipment. If it is impossible, let the fire burn.
- Wear appropriate personal protection equipment

6. Accidental release measures

a) Personal precautions, protective equipment and emergency procedures:

- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wipe off spillage immediately.
- Keep unnecessary people away, isolate the hazard area and deny entry.
- Remove all sources of ignition.
- Stop leak if possible without personal risk.
- Do not touch or walk through spilled material without personal protection equipment

b) Environmental precautions and protective procedures:

- Avoid the spills diffusion to waterways and sewer.

c) Methods and materials for containment and cleaning up:

- Absorb with sand or other non-combustible material.
- Transfer to proper containers for disposal of spilled material.

7. Handling and storage

a) Precautions for safe handling:

- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Follow all MSDS / label precautions because product residue may remain even after container is emptied.

b) Conditions for safe storage:

- Store in a tightly sealed container.
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- Keep away from food and drinks

8. Exposure controls & personal protection

a) Control parameters:

- ACGIH: C 100 mg/m³ (aerosol only)
- Biological exposure limit: Not available

b) Appropriate engineering controls:

- Use total ventilation, local exhaust to keep air under exposure limit.
- Install the washing facilities and safety shower facilities for storing or using this material.

c) Personal protective equipment

- Respiratory protection: gas/mist/vapours
- Eye protection:
 - Wear splash resistant safety goggles.
 - Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
- Hands protection: Wear appropriate chemical resistant gloves.
- Body protection: Wear appropriate chemical resistant clothing.

9. Physical and chemical properties

- a) Appearance (physical state, color etc): Transparent, colorless liquid
- b) Odour: No odor
- c) Odour threshold: Not available
- d) pH: Not available
- e) Melting point/freezing point: -13°C
- f) Initial boiling point and boiling range: 198°C
- g) Flashing point : 111°C
- h) Evaporation rate: Not available
- i) Flammability (solid, gas): Not applicable
- j) Upper/lower flammability or explosive limits: 15.3/3.2%
- k) Vapor pressure: 7Pa (at 20°C)
- l) Solubility: Soluble
- m) Vapor density: 2.1 (Air=1)
- n) Relative density: 1.1 (Water=1)
- o) Partition coefficient: n-octanol/water: -1.93
- p) Auto-ignition temperature: 398°C
- q) Decomposition temperature: Not available
- r) Viscosity: 16.1cP (at 25°C)

s) Formula mass: 62.07

10. Stability and reactivity

a) Chemical stability and possibility of hazardous reactions:

- Very toxic gas can be caused by thermal decomposition or combustion.
- Thermal decomposition product: corrosive and toxic fumes.
- Containers may explode when heated.
- Not easily ignited

b) Conditions to avoid (e.g. static discharge, shock or vibration, etc):

- Avoid heat, sparks, flame and other ignition sources.

c) Incompatible materials: Combustible materials, Reducing agents

d) Hazardous decomposition products:

- Corrosive and toxic fumes
- Irritating, corrosive and toxic gases.

11. Toxicological information

a) Information on the likely routes of exposure: Not available

b) Health hazards information

- Acute toxic:

- Oral: LD50 4000mg/kg Rat
- Dermal: LD50 > 10600mg/kg Rabbit
- Inhalation: Not available

- Skin corrosive/irritant: mild dermal irritation in rabbits and guinea pigs
(skin irritation test)

- Serious eye damage/eye irritation:

Short-term exposure to ethylene glycol (liquid or vapour) causes conjunctival irritation with no permanent damage to the cornea. Causes eye irritation.

(Based on the description in the report on rabbit eye irritation tests)

- Respiratory sensitization: Not available

- Skin sensitization: Negative (human)

- Carcinogenicity:

- IARC: Not available
- NTP: Not available
- OSHA: Not available
- ACGIH: A4
- EU CLP: Not available

- Germ Cell Mutagenicity :

- Dominant lethal assay: Negative
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- Micronucleus test: Negative
 - Chromosome aberration test: Negative
 - Reproductive toxicity:
 - Malformations, retarded ossification and unossification are observed in offspring at dosing levels not toxic to dams.
 - Specific target organ toxicity (single exposure):
 - consciousness disorder, convulsions and stupor ; an increase in urea nitrogen, creatinine and uric acid concentrations (blood examination); albuminuria, hematuria and nephropathy (urine examination); degeneration of convoluted tubules (renal biopsy); mild pulmonary congestion
 - Specific target organ toxicity (repeated exposure):
 - mild headache and backache, upper respiratory tract irritation and the evidence from animal studies including inflammatory degeneration of the lung and heart.
 - Aspiration hazard: Not available
 - c) Numerical measures of toxicity (Such as acute toxicity estimates): Not available

12. Ecological information

- a) Aquatic and terrestrial ecotoxicity:
 - Fish species: LC50 8050 mg/l 96hr Pimephales promelas
 - Crustaceans: LC50 41100 mg/l 48hr Daphnia magna
 - Algae: EC50 6500 ~ 13000 mg/l 96hr Selenastrum capricornutum
- b) Persistence and degradability:
 - Persistence: log Kow -1.93
 - Degradability: BOD 0.78 mg/l
BOD5/COD 0.66
COD 1.19 mg/l
- c) Bioaccumulative potential:
 - Biodegradation: 89 (%) 20 day
 - Bioaccumulation: BCF 200
- d) Mobility in soil: Not available
- e) Other adverse effects: Not available

13. Disposal considerations

- a) Disposal method: Dispose of container and unused contents in accordance with all applicable regulations.
 - b) Disposal precaution: Disposal should be in accordance with applicable regulations.
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14. Transport information

- a) UN number: Not Regulated
- b) UN proper shipping name: Not applicable
- c) Transport hazard class: Not applicable
- d) Packing group (if applicable): Not applicable
- e) Marine pollution: Not available
- f) Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:
 - EmS(Emergency Schedule) Fire: Not applicable
 - EmS(Emergency Schedule) Spill: Not applicable

15. Regulatory information

- a) Regulations by other countries' law
 - EU Classification
 - Classification result: Xn; R22
 - Hazard statements: R22
 - Precautionary statements: S2
 - U.S. Regulations
 - OSHA Process safety (29CFR1910.119): Not applicable
 - CERCLA Section 103 (40CFR302.4): 2267.995 (kg) 5000 (lb)
 - EPCRA Section 302 (40CFR355.30): Not applicable
 - EPCRA Section 304 (40CFR355.40): Not applicable
 - EPCRA Section 313 (40CFR372.65): Applicable
 - Rotterdam convention on harmful chemicals & pesticides: Not applicable
 - Stockholm convention on persistent organic pollutants: Not applicable
 - Montreal protocol: Not applicable

16. Other information

- a) Information source and references:
 - (1) ICSC, (2) HSDB, (3) IUCLID, (4) ECOTOX
 - b) Issuing date: 2013-04-01
 - c) Revision number and date: 0
 - d) others: Not available
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