



Arak Petrochemical Company



ISO 9001:2000
Certificate No.: CH98/8032

ISO 14001:2004
Certificate No.: CH03/0112

OHSAS 18001:1999
Certificate No.: CH05/0675

Address:

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Monoethylene glycol (MEG)

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: MEG

Product Description: Monoethylene Glycol

CAS No.: 107-21-1

Product Formulation: HOCH₂CH₂OH

Common names: Monoethylene glycol, ethylene glycol, 1,2-Ethanediol, ethane-1,2-diol

Chemical Family: Glycols

2. HAZARDS IDENTIFICATION

INHALATION: excessive exposures may cause irritation to eyes, nose, throat and lungs. Irritation to respiratory tract; central nervous system (brain) effects; discomfort, disagreeable odor, nausea. Repeated excessive exposures may cause liver effects or damage. kidney effects or damage. Chronic, adverse systemic effects.

SKIN CONTACT: skin absorption of material may produce systemic toxicity. Contains a material(s) which may cause irritation with prolonged or repeated contact.

Eye Contact: contact with the eye may cause irritation.

INGESTION: harmful or fatal if swallowed. Ingestion of this material may cause abdominal pain; central nervous system (brain) effects; difficulty in breathing; respiratory failure; and death. Ingestion of this material may cause damage to kidneys.

3. COMPOSITION

Chemical Name	Wt. %	CAS No.
Ethylene glycol	Min. 99.00	107-21-1

4. FIRST AID MEASURES

Eyes: flush with water for at least 15 minutes. If irritation persists, obtain medical assistance.

Skin: wash with soap and water until no odor remains. If redness or swelling develops, obtain medical assistance. Obtain medical attention. Immediately remove soaked clothing. Wash clothing



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before reuse.

Ingestion: give liquids and induce vomiting unless victim is unconscious. Obtain emergency medical attention. Small amounts which accidentally enter mouth should be rinsed out until taste of it is gone.

Inhalation: move person to fresh air. If not breathing, give artificial respiration, obtain medical assistance.

5. FIRE-FIGHTING MEASURES

Flashpoint: 245 closed cup (°F); 111 closed cup (°C)

Lower Explosive Limit (LEL): 3.2 % volume

Upper Explosive Limit (UEL): estimated @ 15.3 % volume

Autoignition temp.: 748 °F; 398 °C

Extinguishing Media: water spray. alcohol resistant foam. dry chemical, carbon dioxide.

Fire Fighting Procedures: use water spray. Cool tank/ container. wear self-contained breathing apparatus. Wear structural firefighters protective clothing.

Extinguishing Media: water spray. alcohol resistant foam. dry chemical, carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL): use appropriate personal protective equipment during clean-up . Evacuate personnel, thoroughly ventilate area, and use self-contained breathing apparatus.

Initial Containment: remove source of heat, sparks, flame, impact, friction or electricity. dike spill. Prevent material from entering sewers, water ways, or low areas.

Spill cleanup: recover free liquid for reuse or reclamation. Soak up with saw dust, sand, oil dry or other absorbent material.

7. HANDLING AND STORAGE

Keep in cool, dry place. Keep in well ventilated space. Storage has temperature limits. NFPA class IIIB storage. Consult NFPA and OSHA codes. Avoid prolonged breathing of mist or vapor. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Consult with a health/safety professional for specific selection ventilation ventilate as needed to comply with exposure limit. Local exhaust ventilation recommended. Mechanical ventilation recommended personal protective equipment.



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Eye: splash proof chemical goggles recommended to protect against splash of product.

Gloves: protective gloves recommended when prolonged skin contact cannot be avoided. polyethylene; neoprene; nitrile; polyvinyl alcohol; natural rubber; butyl rubber.

Respirator: concentration-in-air determines protection needed. use only niosh certified respiratory protection. Respiratory protection usually not needed unless product is heated or misted. Half-mask air purifying respirator with organic vapor cartridges is acceptable to 10 times the exposure limit. Full-face air purifying respirator with organic vapor cartridges is acceptable to 50 times the exposure limit not to exceed the cartridge limit of 1000 ppm. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures above 50x the exposure limit. if exposure is above IDLH (immediately dangerous to life & health) or there is the possibility of an uncontrolled release or exposure levels are unknown then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance And Odor: colorless liquid odor slightly sweet

PH: 6-8 @ 558g/l H₂O

Solubility In Water: complete

Solubility In Other solvents: alcohol -ether- acetone

Evaporation Rate: 1000x slower (ethyl ether=1)

VAPOR PRESSURE: 0.08 (mm Hg @ 20 °C)

BOILING POINT: 388 °F, 198 °C

MELTING POINT: -11.5 °C

MOLECULAR WEIGHT: 62.07

DENSITY/SPECIFIC GRAVITY: 1.1 (WATER=1)

VAPOR DENSITY: 2.1 (AIR=1)

10. STABILITY AND REACTIVITY

Stability: stable

Conditions To Avoid: extreme heat will ignite in air A748F. Do not store at temperatures above 120 °F (60 °C).

INCOMPATIBILITY: strong oxidizing chemicals. Reacts violently with chlorosulfonic acidoleum, sulfuric acid, strong bases.

Hazardous Decomposition Products: carbon monoxide and asphyxiants are produced by burning.

Hazardous Polymerization: will not occur.



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11. TOXICOLOGICAL INFORMATION

FOR THE PRODUCT:

INHALATION: over exposure to mist or vapors may cause eye nose, throat & respiratory tract irritation, CNS (brain) effects, dizziness, drunkenness, incoordination, coma, respiratory failure, or death. Excessive exposures may cause brain, liver, and/or kidney effects and damage.

SKIN & EYE: large acute exposure may cause systemic effects.

IRRITANT ON CONTACT:

INGESTION: toxic harmful or fatal if swallowed.

Acute poisoning (as little as 100 ml in humans) characterized by gi pain, nausea, vomiting, muscle tenderness, CNS depression, possible respiratory and renal failure, death. in lab animals by oral and inhalation exposure embryotoxicity & teratogenicity were reported.

ETHYLENE GLYCOL (COMPONENT):

INHALATION: overexposure to mist or vapors generated by heating may cause eye, nose, throat, & respiratory irritation, CNS (brain) effects & dizziness. Excessive prolonged exposures may cause kidney, liver, blood, brain effects or damage. Skin & eye: large acute exposure may cause systemic toxicity. Irritation contact. Oral: toxic harmful or fatal if swallowed. Acute poisoning (as little as 100 ml in humans has produced lethality) characterized by gi pain, nausea, vomiting, muscle spasms, convulsions and CNS depression, possible renal and respiratory failure, death. in lab animals by oral & inhalation exposure fetal toxicity and birth defects were reported.

12. ECOLOGICAL INFORMATION

Aquatic toxicity: TLm96 (concentration in water that kills 50% of exposed organisms) is in the range of 100 to 1000 ppm. LC50 (24 hrs.)

To goldfish: >5,000 mg/l

The toxicity threshold for scendesmus quadricauda (green algae) to ethylene glycol is >10,000 mg/l.

13. DISPOSAL CONSIDERATIONS

Follow federal, state and local regulations.

If uncontaminated. Do not flush to drain/ storm sewer. Contract to authorized disposal service.

Contain spill. For large spill, leak or release. Use personal protective equipment stated. Advice EPA; state agency if required. Absorb on inert material. Shovel, sweep or vacuum spill. Flush with water and remove contaminated articles.



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14. TRANSPORT INFORMATION

Road and Rail Transport

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

Marine Transport

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

Air Transport

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

15. REGULATORY INFORMATION

Classification:

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

Acute Oral Toxicity - Category 4

Specific target organ toxicity (repeated exposure) - Category 2

Hazard Statement(s):

H302 Harmful if swallowed.

H373 May cause damage to organs through prolonged or repeated exposure.

Poisons Schedule (SUSMP): S6 Poison

This material is listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Caution

The information contained in this Material Safety Data Sheet (MSDS) is believed to be correct since it was obtained from sources we believe are reliable. However no representation, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material, or the results to be obtained from the use thereof. User assumes all risks and liability of any use, processing or handling of any material, variations in methods, conditions and equipment used to store, handle, or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at his sole discretion.