



SAFETY DATA SHEET

(according to EC Regulation No 1907/2006)

PAGE
1

ETHYLENE GLYCOL

Version No: 03

Date: April 2016

1. IDENTIFICATION OF CHEMICAL/SUBSTANCE AND COMPANY/UNDERTAKING

PRODUCT INFORMATION

Product Name	Ethylene Glycol. Polyester Grade
Use of substance/mixture.. .	For making Polyester and other chemicals
Manufacturer....	EQUATE Petrochemicals Company (K.S.C.C.)
	P.O. Box 9717, Ahmadi 61008, Kuwait
Telephone Number.....	+965 1898888 extn 5678
Emergency Number	+965 99870572 (24 hours a day)
Email	ISCMarinePlanning@equate.com

2. HAZARDS IDENTIFICATION

Classification according to Regulation (EC) No 1272/2008



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



Xn ; Harmful

R22: Harmful if swallowed.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms:



Signal word: Warning

GHS07

Hazard statements: H302 Harmful if swallowed.

Precautionary statements:

P264 Wash thoroughly after handling.

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

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330 Rinse mouth.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.



MATERIAL SAFETY DATA SHEET

EFFECTS OF A SINGLE OVEREXPOSURE

Swallowing

May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, lumbar pain, oliguria, uremia, and central nervous system effects, including irregular eye movements, convulsions, and coma. Cardia failure and pulmonary oedema may develop. Severe kidney damage follows the swallowing of large volumes of Ethylene Glycol. May be fatal. A few reports has been published describing the development of weakness of the facial muscles, diminished hearing, and difficulty with swallowing, during the late stages of severe poisoning.

Skin Absorption

No evidence of harmful effects from available information

Inhalation

May cause irritation of the nose and throat with headache, particularly from mist. High vapor concentrations caused, for example, by heating the material in an enclosed and poorly ventilated workplace may produce nausea, vomiting, headache, dizziness, and irregular eye movements.

Skin Contact

No evidence of harmful effects from available information.

Eye Contact

Liquid, vapor or mist cause irritation, experienced as stinging, excess blinking and tear production, with excess redness of the conjunctiva. In jury to the cornea is not expected.

EFFECTS OF REPEATED OVEREXPOSURE

Repeated inhalation of Ethylene Glycol mist may produce sings of central nervous system involvement, particularly dizziness and nystagmus.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE

May aggravate an existing kidney disease

OTHER EFFECTS OF OVEREXPOSURE

Repeated skin contact with Ethylene Glycol may, in a very small proportion of cases, cause sensitization with the development of allergic contact dermatitis. The incidence is significantly less than 1% with the undiluted material.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS #	% w/w	Hazards
Ethylene glycol	107-21-1	100	Toxic



MATERIAL SAFETY DATA SHEET

Page 3 of 8

EXPOSURE LIMITS AND TOXICOLOGICAL DATA

Ethylene Glycol

EL	:	39.4 ppm	Ceiling, Aerosol	ACGIH
EL	:	39.4 pm	Ceiling, Vapor and Aerosol	Union Carbide
LC50	:	Not Available		
LD50	:	9530 ul/kg	Skin-Rabbit	RTECS
EL	:	Exposure Limit	LC: Lethal concentration	LD: Lethal Dose

Consult local authorities for recommended exposure limits.

4. FIRST AID MEASURES

SWALLOWING

If patient is fully conscious, give two glasses of water. Induce vomiting. Obtain medical attention without delay. If medical advice is delayed, and if the person has swallowed a moderate volume of material (a few ounces), then give three to four ounces of hard liquor, such as whiskey. For children, give proportionally less liquor, according to weight.

SKIN CONTACT

Remove contaminated clothing. Wash skin with soap and water. Obtain medical attention if irritation persists. Wash clothing before reuse.

INHALATION

Remove to fresh air. Obtain medical attention if symptoms persist.

EYE CONTACT

Immediately flush eyes with water and continue washing for several minutes. Remove contact lenses, if worn. Obtain medical attention.

5. FIRE FIGHTING MEASURES

OSHA Classification (29 CFR 1910.1200): Combustible Liquid

Classification NFPA Class-IIIA Combustible Liquid

NFPA Ratings: Health: 1, Flammability: 1, Reactivity: 0

FLASH POINT

116°C, Tag closed cup, ASTM D 56

115.6°C Cleveland Open Cup, ASTM D 92

AUTOIGNITION TEMPERATURE

Not Available

FLAMMABLE LIMITS IN AIR, % BY VOLUME

Upper: 15.3 estimated

Lower: ~ for Ethylene Glycol

HAZARDOUS COMBUSTION PRODUCTS

Burning can produce the following products:

Carbon monoxide and/or carbon dioxide

Carbon monoxide is highly toxic if inhaled; carbon dioxide is sufficient concentration can act as an asphyxiant.

EXTINGUISHING MEDIA

Apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

EXTINGUISHING MEDIA TO BE AVOIDED

None



MATERIAL SAFETY DATA SHEET

Page 4 of 8

SPECIAL FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam in to hot burning pools; this may cause frothing and increase fire intensity.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

UNUSUAL FIRE AND EXPLOSIVE HAZARDS

See Section-7, Other Precautions

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Suitable protective equipment. Large spills should be contained and collected. Small spills can be collected or may be absorbed with appropriate liquid absorbing materials. All spill response and disposal should be carried out in accordance with appropriate government regulations.

7. HANDLING AND STORAGE

HANDLING

General Handling Precautions

Do not swallow.
Avoid contact with eyes.
Avoid prolonged or repeated breathing of aerosol and vapor. Use with adequate ventilation.
Wash thoroughly after handling.

FOR INDUSTRY USE ONLY

Ventilation

General (mechanical) room ventilation may be adequate if handled, at ambient temperatures or in covered equipment. If ambient temperatures are exceeded or operations exist which may produce misting, local exhaust ventilation or other engineering controls may be required.

Other Precautions

ADDITIONAL INFORMATION: Additional product safety information on this product may be obtained by calling your EQUATE Petrochemical Company (K.S.S.C.) Sales or Customer Service contact.

PROCESS HAZARD: Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment under a vacuum may result in ignitions without the presence of obvious ignition sources. Published „autoignition“ or „ignition“ temperature values can not be treated as safe operating temperatures in chemical process without analysis of the actual process conditions.

Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

STORAGE

Keep contained closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

See Section 2, "EXPOSURE LIMITS AND TOXICOLOGICAL DATA".



MATERIAL SAFETY DATA SHEET

Page 5 of 8

PERSONNEL PROTECTION

Respiratory Protection

If personel exposure exceeds exposure limits 39.4 ppm (100 mg/m3) (aerosol and vapor combined) at any time, select respiratory protection equipment.

Approved atmosphere-supplying respirator or approved air-puryfying respirator with organic vapor cartridge and dust/,ist per-filter is recommended.

Hand Protection / Protective Gloves

Use chemical resistant gloves (eg: Nitrile or PVC). Use heat resistant gloves for thermal protection, if needed.

Eye Protection

Use Safety glasses with side shields. If exposure causes discomfort, use a full-face respirator

Other Protective Equipment

Eye bath, safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Transparent Colorless
Odor	Mild Sweet
Molecular Weight	62.07
Boiling Point (°C at 760 mm Hg)	>197
Freezing Point (°C)	-13
Pour Point	Not Applicable
Melting Point	Not Applicable
Specific Gravity (H2O = 1)	1.115 at 20/20°C
Vapor Pressure (at 20°C)	0.06 mm Hg
Vapor Density (air=1)	2.1
Evaporation Rate (butyl acetate = 1)	0.01
Solubility in Water (by weight)	100%
% Volatiles	Not Available
pH	Not Available
Coefficient of Water/Oil Distribution	Not Determined

10. STABILITY AND REACTIVITY

STABILITY	Stable
Conditions to Avoid	None known
Incompatible Materials	

Explosive decomposition may occur if combined with strong acids of strong bases and subjected to elevated tempratures. Therefore, avoid strong acids and strong bases at elevated temperatures. Avoid contanination with strong odixizing agents and materials reactive with hydroxyl compounds.



MATERIAL SAFETY DATA SHEET

Page 6 of 8

Hazardous Decomposition Products

See Section 5, "HAZARDOUS COMBUSTION PRODUCTS".

POLYMERIZATION Will Not Occur

Conditions to Avoid None known

11. TOXICOLOGICAL INFORMATION

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION

Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentration or doses. The no-effects doses for developmental toxicity for ethylene glycol given by gavage over the period of organogenesis has been shown to be 150 mg/kg/day for the mouse and 500 mg/kg/day for the rat.

Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations of 150, 1000, 1500 and 2500 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 2500 mg/m³ and developmental toxicity with minimal evidence of teratogenicity (2500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen. There is currently no available information to suggest that ethylene glycol has caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity. Exposure to high aerosol concentrations is only minimally effective in producing developmental toxicity. The major route for producing developmental toxicity is perorally.

Two chronic feeding studies using rats and mice have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence, or a different pattern of tumors compared with untreated controls. The absence of a carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.



MATERIAL SAFETY DATA SHEET

Page 7 of 8

12. ECOLOGICAL INFORMATION

PERSISTENCE AND DEGRADABILITY

All available ecological data have been taken into account for the development of the hazard and precautionary information contained in this Material Safety Data Sheet.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD(S)

Ethylene Glycol from many applications is readily reclaimed; reclamation of Ethylene Glycol from spent fluids is encouraged where possible. At low concentration in water, this product is biodegradable in a biological wastewater treatment plant.

Where Ethylene Glycol reclamation or sewerage are not available, this product may be incinerated where permitted under appropriate government regulations.

14. TRANSPORT INFORMATION

PRIMARY CLASS	None
SUBSIDIARY CLASS	None
SHIPPING NAME	None
PACKING GROUP	None
UN	None

15. REGULATORY INFORMATION

LABEL STATEMENTS

DANGER!
HARMFUL OR FATAL IF
SWALLOWED CAUSES EYE
IRRITATION
PROLONGED OR REPEATED BREATHING OF AEROSOL OR VAPOR IS
HARMFUL. MAY CAUSE KIDNEY AND NERVOUS SYSTEM DAMAGE.
CAUSES BIRTH DEFECTS IN LABORATORY ANIMALS.

FOR INDUSTRY USE ONLY

EINECS

This product is on the EINECS inventory.

TSCA

This product is on the TSCA inventory

DSL

This product is on the DSL

16. OTHER INFORMATION

Revision History:

Version3: Update UN-GHS Symbols and Revision History Added

LEGEND

TS	Trade Secret
N/A	Not Available
W/W	Weight/Weight



MATERIAL SAFETY DATA SHEET

Page 8 of 8

The opinions expressed herein are those of qualified experts within EQUATE Petrochemicals Company (K.S.C.C). We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of the use of the product are not within the control of EQUATE Petrochemicals Company (K.S.C.C.), it is the user's obligation to determine conditions of safe use of the product.