MONO-ETHYLENE GLYCOL

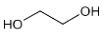
Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Previous revision date: 3/18/2024, Revision date: 01/12/2026, Version: 2.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product identification	:	Substance
Substance name	:	Mono-Ethylene Glycol “Ethanediol”
EC-No.	:	203-473-3
CAS-No.	:	107-21-1
REACH registration No.	:	01-2119456816-28
Formula	:	C2H6O2
Chemical structure	:	

1.2. Relevant identified uses of the substance or mi xture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Intermediates, Anti-freezing agents, Heat transfer agents.

1.2.2. Uses advised against

Chemical product category (PC): PC 29:Pharmaceuticals

1.3. Details of the supplier of the safety data sheet

Manufacturer
Rabigh Refining and Petrochemical Company
PO Box 101, Rabigh 21911, Kingdom of Saudi Arabia
T +966 12 425 0390, 800 440 9000
SDSGroup@petrorabigh.com

1.4. Emergency telephone number

Emergency number :

Asia Pacific	CareChem 24 +65 3158 1074
US, Canada Outside above area	ChemTrec +1-800-424-9300 +703-527-3887
Europe (Europe & English Speaking)	CareChem 24 +44 1235 239 670
Middle East & Africa (Arabic speaking)	CareChem 24 +44 1235 239 671

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity, oral (Category 4)	H302
Specific target organ toxicity, repeated exposure (Category 2)	H373

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

Signal word (CLP) : Warning

Hazard statements (CLP) :

H302: Harmful if swallowed

H373: May cause damage to kidneys through prolonged or repeated exposure

Precautionary statements (CLP) :

Do not breath vapor. Do not eat, drink or smoke when using this product. Wash hand thoroughly after handling

2.3. Other hazards

Not Applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : Monoethylene Glycol

CAS-No. : 107-21-1

EC-No. : 203-473-3

Name	Product identifier	%
Ethylene Glycol	CAS-No.: 107-21-1 EC-No.: 203-473-3	99.99
2,2'-oxydiethanol (Impurity)	CAS-No.: 111-46-6 EC-No.: 203-872-2	0.01

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. Rinse skin with water/shower. Take off immediately all contaminated clothing.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : No relevant human information is available.

Symptoms/effects after skin contact : No relevant human information is available.

Symptoms/effects after eye contact : No relevant human information is available.

Symptoms/effects after ingestion : Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray, Foam, or Dry chemical.

Unsuitable extinguishing media : None Known

5.2. Special hazards arising from the substance or mixture

Fire hazard : In a fire or if heated, a pressure increase will occur and the container may burst

Hazardous decomposition products in case of fire : carbon dioxide and carbon monoxide.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent firefighting water from entering the environment.

Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Evacuate unnecessary personnel. Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Notify

authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For disposal of residues refer to section 13 : "Disposal considerations".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : allow safe handling of the substance such as containment and measures to prevent fire as well as aerosol and dust generation. prevent handling of incompatible substances or mixtures; and reduce the release of the substances or mixtures to the environment.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities.

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.

Storage conditions : Keep container tightly closed in a cool, well-ventilated place. Store locked up. Store in a well-ventilated place. Keep cool. Keep in fireproof place. Keep container tightly closed.

Incompatible materials : Oxidizing agents.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Ethylene Glycol (107-21-1)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethylene Glycol
ACGIH OEL [ppm]	TWA: 25 ppm STEL: 50 ppm
Remark (ACGIH)	TLV® Basis: URT irritation
ACGIH chemical category	A4-Not Classifiable Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route
Regulatory reference	ACGIH 2023

8.1.2. Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for

methods for the determination of hazardous substances

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the workstation.

8.2.2. Personal protection equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:
Chemical goggles or safety glasses. Recommended: safety glasses with side-shields

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Wear protective gloves. butyl rubber, nitrile rubber, PVC, Viton®.

8.2.2.3. Respiratory protection

Respiratory protection:
Wear appropriate mask. [In case of inadequate ventilation] wear respiratory protection. Recommended: organic vapor filter (Type A)

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid, syrupy
Colour	:	clear, colorless
Odour	:	odorless
Odour threshold	:	Not available
Melting point	:	Not available
Freezing point	:	-13 °C
Boiling point	:	197.4ºC at 1013 hPa
Flammability	:	Not available

Explosive limits	:	Not available
Lower explosion limit	:	1.8 vol %
Upper explosion limit	:	12.8 vol %
Flash point	:	Closed cup: 111.0ºC at 1013.25 hPa
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity	:	20 mPa.s
Solubility	:	Miscible in all proportions
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Partition coefficient n-octanol/water (Log Pow)	:	-1.36
Vapor pressure	:	Not available
Vapor pressure at 50°C	:	Not available
Density	:	Not available
Relative density	:	1.11
Relative vapor density at 20°C	:	2.14
Particle characteristics	:	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid

Keep away from heat, sparks and flame. Avoid humidity. Avoid daylight. Temperature above > 40 °C.

10.5. Incompatible materials

Oxidizing agents

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.
The substance will burn to carbon oxides

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	:	Acute Tox. 4
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

Ethylene Glycol (107-21-1)	
LD50 oral rat	317 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	630 mg/kg

LC50 Inhalation - Rat	0.316 mg/l air Animal: rat, Animal sex: female, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified.

Carcinogenicity ACGIH : A4

Ethylene Glycol (107-21-1)	
IARC group	Group 3

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : STOT Rep. Exp. 2

Aspiration hazard : Not classified

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

Ethylene Glycol (107-21-1)	
LC50 - Fish	72860 mg/l (Exposure time: 96 h)
LC50 - Daphnia	>100 mg/l (Exposure time: 48 h)
EC50 - Daphnia	23 mg/l (Exposure time: 48 h)
EC50 96h - Algae	150 mg/l Test organisms

Overview of aquatic toxicity data available for the substance:

	Test organism	Test guideline	Endpoint	Value	Resource
Short-term toxicity to fish					
Experimental data	Pimephales promelas	EPA 600/4-90/027	96-h LC50	72860 mg/L (nom.)	Key study; Pillard, 1995
	Pimephales promelas	ASTM, 1980	96-h LC50	53000 mg/L (geo-mean nom.)	Key study; Mayes, 1983
Estimated data	-	ECOSAR calculation	96-h LC50	53100 mg/L	Supporting study; QSAR
Long-term toxicity to fish					
Estimated data	Menidia pe.	ASTM E-47.01	28 -d NOEC	> 40 mg/L (meas.)	Key study; RA to CAS 112-27-6, Montgomery, 1985
Estimated data	-	ECOSAR	ChV	914 mg/L	Supporting

		calculation			study; QSAR
Short-term toxicity to aquatic invertebrates					
	Daphnia magna	OECD 202	48-h EC50	> 100 mg/L	Key study; BASF AG, 1998
Estimated data	-	ECOSAR calculation	48-h EC50	22108 mg/L	Supporting study; QSAR
Long-term toxicity to aquatic invertebrates	Ceriodaphnia dubia	EPA 600/4-89/001	7-d NOEC	8590 mg/L	Key study; Pillard, 1995
Estimated data	-	ECOSAR calculation	16-d ChV	909 mg/L	Supporting study; QSAR
Toxicity to aquatic algae and cyanobacteria					
	Raphidocelis subcapitata	OECD 201	72h NOEC	> 100 mg/L	Key study; RA to CAS 4792-15-8; Mead, 2003
	Raphidocelis subcapitata	EPA 600/9-78-018	96-h ErC50	6500 – 13000 mg/L	Supporting study; DOW, 1982
Estimated data	-	ECOSAR calculation	96-h ErC50 ChV	4566 mg/L 599 mg/L	Supporting study; QSAR
Toxicity to microorganisms	activated sludge, domestic	ISO 8192	30-min EC20	>1995 mg/L	Key study; RA to CAS 111-46-6; BASF AG, 1982
	activated sludge, domestic	OECD 209	3-h EC50	>1000 mg/L	Supporting study; RA to CAS 111-46-6, Klecka, 1985

12.2. Persistence and degradability

Ethylene Glycol (107-21-1)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Ethylene Glycol (107-21-1)	
Bioaccumulative potential	Bioaccumulation in aquatic organisms is not to be expected.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Dispose of in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Packs that cannot be cleaned should be disposed of in the same manner as the contents.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
-	-	-	-	-
Transport document description				
No data available	No data available	No data available	No data available	No data available
14.3. Transport hazard class(es)				
-	-	-	-	-
14.4. Packing group				
-	-	-	-	-
14.5. Environmental hazards				
No	No	No	No	No
No supplementary information available				

14.6. Special precautions for user

No data available

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

No data available

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No data available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Effective concentration for 50 percent of test population (median effective concentration)
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal concentration for 50 percent of test population (median lethal concentration)
LD50	Lethal dose for 50 percent of test population (median lethal dose)
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration

Abbreviations and acronyms:	
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulation concerning the International Carriage of Dangerous Goods by Railways
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Sources of Key data : Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (et sequens).

Other information : None.

Petro Rabigh Company identification number : PR-0010

Full text of H- and EUH-statements:	
H302	Harmful if swallowed
H373	May cause damage to kidneys through prolonged or repeated exposure

Safety Data Sheet (SDS), EU