

SAFETY DATA SHEET

MONO-ETHYLENE GLYCOL

Section 1. Identification

Product name : MONO-ETHYLENE GLYCOL
Product description : Alcohol

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Antifreeze/coolant, Raw material
Uses advised against : This product is not recommended for any industrial, professional or consumer use other than the Identified Uses above.

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Section 2. Hazard identification

Classification of the substance or mixture : Acute Tox. 4, H302
STOT RE 2, H373 (kidneys)

GHS label elements

Hazard pictograms :

Signal word : Warning
Hazard statements : H302 - Harmful if swallowed.
H373 - May cause damage to organs through prolonged or repeated exposure. (kidneys)

Precautionary statements

Prevention : P260 - Do not breathe vapour.
P264 - Wash thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
Response : P301 + P330, P312 - IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.
Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Contains : ethane-1,2-diol

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Nota : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : ethane-1,2-diol

Ingredient name	% by weight	Identifiers
ethane-1,2-diol	100	REACH #: 01-2119456816-28 EC: 203-473-3 CAS: 107-21-1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs. Get medical attention following exposure or if feeling unwell.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Section 4. First-aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).
- Unsuitable extinguishing media** : Do not use water jet.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products : Incomplete combustion products, Oxides of carbon, Smoke, Fume

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Material will sink. Remove material, as much as possible, using mechanical equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Static Accumulator** : This material is not a static accumulator.

- Loading/Unloading Temperature** : Ambient

- Transport Temperature** : Ambient

- Transport Pressure** : Ambient

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

- Storage Temperature** : Ambient

- Storage Pressure** : Ambient

- Suitable Containers/Packing** : Tank Cars, Tank Trucks, Drums, Tankers

- Suitable Materials and Coatings** : aluminium, steel, Inorganic Zinc Coatings

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Product/ingredient name	Exposure limit values
ethane-1,2-diol	<p>EU OEL (Europe, 1/2022) Absorbed through skin. TWA 8 hours: 20 ppm. TWA 8 hours: 52 mg/m³. STEL 15 minutes: 40 ppm. STEL 15 minutes: 104 mg/m³.</p> <p>ACGIH TLV (United States, 1/2024) STEL 15 minutes: 10 mg/m³. Form: Inhalable fraction. Aerosol only.. STEL 15 minutes: 50 ppm. Form: Vapor fraction. TWA 8 hours: 25 ppm. Form: Vapor fraction.</p>

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Nitrile, minimum 0.38 mm thickness or comparable protective barrier material
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: organic vapour (Type A) and particulate filter

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Liquid. [Clear]
Colour	: Colourless
Odour	: Odourless
Odour threshold	: Not available.
pH	: Not available.
Melting point/freezing point	: -13°C (8.6°F) [Technical literature]
Boiling point or initial boiling point and boiling range	: 197°C (386.6°F) [Technical literature]
Flash point	: Closed cup: 111°C (231.8°F) [Technical literature]
Evaporation rate	: Not available.
Flammability	: Ignitable
Lower and upper explosion limit/flammability limit	: Lower: 3.2%
Vapour pressure	: 0.09 mm Hg [25 °C]
Relative vapour density	: 2.1 [Air = 1]
Relative density	: 1.11 [In-house method]
Density	: 1.11 g/cm ³ [20°C (68°F)]
Solubility in water	: Complete
Partition coefficient: n-octanol/water	: -1.36 [Technical literature]
Auto-ignition temperature	: 398°C (748.4°F) [Technical literature]
Decomposition temperature	: Not available.
Viscosity	: 16.1 cSt [25 °C]
Molecular weight	: 62
<u>Particle characteristics</u>	
Median particle size	: Not applicable.
Pour point	: -13°C [Technical literature]
Hygroscopic	: Yes
Coefficient of Thermal Expansion	: 0.00068 per Deg C

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Excessive heat.
Incompatible materials	: Strong oxidisers, Strong Acids, Strong Bases, reducing agents

Section 10. Stability and reactivity

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Species	Result	Duration
ethane-1,2-diol	LC50 Inhalation Dusts and mists	Rat	>2.5 mg/l	6 hours
	LD50 Dermal	Rabbit	>3500 mg/kg	-
	LDLo Oral	Human	1560 mg/kg	-

Conclusion/Summary

- Inhalation** : Minimally Toxic. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 403
- Dermal** : Minimally Toxic. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 402
- Oral** : Slightly toxic. Data available. Based on test data for the material.

Irritation/Corrosion

Conclusion/Summary

- Skin** : Negligible irritation to skin at ambient temperatures. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 404
- Eyes** : May cause mild, short-lasting discomfort to eyes. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 405
- Respiratory** : Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

- Skin** : Not expected to be a skin sensitizer. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 406
- Respiratory** : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Conclusion/Summary

- : Not expected to be a germ cell mutagen. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 471 473 476

Carcinogenicity

Conclusion/Summary

- : Not expected to cause cancer. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 451

Reproductive toxicity

Conclusion/Summary

- : Not expected to be a reproductive toxicant. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 414 416

Specific target organ toxicity (single exposure)

Conclusion/Summary

- : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
ethane-1,2-diol	Category 2	kidneys

Conclusion/Summary

- : May cause damage to organs through prolonged or repeated exposure. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 410 452

Aspiration hazard

Conclusion/Summary

- : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. Data available.

Section 11. Toxicological information

Other information

Product : ETHYLENE GLYCOL (EG): Repeated high oral exposure has caused kidney damage, neurological effects, degeneration of the liver and changes in blood chemistry and circulating blood cells in laboratory animals. Repeated overexposure has the potential to cause similar toxic effects in humans. EG causes developmental and reproductive effects at high dose levels in laboratory animals. The relevance of these findings to humans is uncertain. MONO- AND DI-ETHYLENE GLYCOLS: Oral exposure may produce kidney damage.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

Toxicity

Product/ingredient name	Duration	Species	Result
ethane-1,2-diol	96 hours	Algae - <i>Pseudokirchneriella subcapitata</i>	Acute EC50 6500 to 13000 mg/l
	48 hours	daphnia - <i>Daphnia magna</i>	Acute EC50 >100 mg/l
	96 hours	Fish - <i>Pimephales promelas</i>	Acute LC50 72860 mg/l
	7 days	Fish - <i>Pimephales promelas</i>	Chronic NOEC 15380 mg/l
	7 days	daphnia - <i>Ceriodaphnia dubia</i>	Chronic NOEC 8590 mg/l

Conclusion/Summary

Acute toxicity : Not expected to be harmful to aquatic organisms.
Chronic toxicity : Not expected to demonstrate chronic toxicity to aquatic organisms

Persistence and degradability

Product/ingredient name	Test	Result	Qualifier	Media
ethane-1,2-diol	Ready Biodegradability	90 % - 10 days	-	water

Photolysis : 1.93 day(s)
Biodegradability : Material -- Expected to be readily biodegradable.

Bioaccumulative potential

Conclusion/Summary : Material -- Potential to bioaccumulate is low.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : 0 Media:Soil
Mobility : Material -- Expected to partition to water. Some partitioning to sediment and wastewater solids. Minimally volatile.

Other ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Section 14. Transport information

	ADR	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments **Proper shipping name** : ETHYLENE GLYCOL
Remarks : **Liquid bulk cargoes:**
Ship type: 3
Pollution category: Z

Section 15. Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia inventory (AIC) : All components are listed or exempted.
Canada inventory (DSL-NDSL) : All components are listed or exempted.
China inventory (IECSC) : All components are listed or exempted.
Japan inventory (CSCL) : All components are listed or exempted.

Section 15. Regulatory information

Japan inventory (Industrial Safety and Health Act)	: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are active or exempted.

Section 16. Other information

History

Date of issue/Date of revision	: 1/10/2025
Date of previous issue	: 6 August 2024
Version	: 1.03

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
	Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Product code : 1156849

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