SAFETY DATA SHEET

MONO ETHYLENE GLYCOL (MEG)

CAS No.: 107-21-1

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

MONO ETHYLENE GLYCOL (MEG)
Synonyms: Ethylene glycol; 1,2-Ethanediol; Ethane-1,2-diol
CAS: 107-21-1

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Antifreeze/coolant manufacture, polyester (PET) resin and fibre production, heat transfer fluids, solvent/humectant in industrial formulations. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Acute Tox. 4	Acute oral toxicity, Category 4, H302

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

Acute Tox. 4: H302 – Harmful if swallowed.

Precautionary statements

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330: Rinse mouth.
P501: Dispose of the contents/containers in accordance with regulations on hazardous waste.

Other hazards which do not result in classification

Sweet taste presents a risk of accidental/deliberate ingestion, including by children and animals – keep securely stored and labelled. Does not meet the PBT/vPvB criteria.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Mono Ethylene Glycol (industrial grade)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 107-21-1	Mono Ethylene Glycol — Acute Tox. 4: H302 – Warning	≥ 99%

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Under normal ambient conditions, vapour exposure is minimal due to low volatility. If mist/vapour is inhaled at elevated temperature, remove the person to fresh air and keep at rest.

By skin contact

Remove contaminated clothing, wash skin thoroughly with water and soap. Seek medical attention if irritation persists.

By eye contact

Rinse eyes thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Seek medical attention if irritation persists.

By ingestion/aspiration

Do NOT induce vomiting. Rinse the mouth with water. Seek IMMEDIATE medical attention even if the person appears well – ethylene glycol ingestion can cause delayed, serious kidney and CNS toxicity; show this SDS to the physician.

Most important symptoms/effects, acute and delayed	Acute and delayed effects are indicated in sections 2 and 11.
Indication of immediate medical attention and special treatment needed, if necessary	Ethanol or fomepizole antidotal therapy (administered by medical personnel) may be indicated for significant ingestion to block metabolism to toxic metabolites (glycolic/oxalic acid); prompt medical evaluation is essential.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	**Suitable:** Water spray/fog, foam, carbon dioxide, dry chemical powder **Unsuitable:** None known
Specific hazards arising from the chemical	Combustible liquid with a high flash point; not readily ignitable under normal ambient conditions. On combustion, releases carbon monoxide and irritating fumes.
Special protective actions for fire-fighters	Evacuate all non-essential personnel. Intervention only by capable personnel who are trained and aware of the hazards of the product. In all cases wear self-contained breathing apparatus. When intervention in close proximity, wear full protective chemical-resistant suit. After intervention, proceed to clean the equipment (take a shower, remove clothing carefully, clean and check). **Additional provisions** Cool fire-exposed containers with water spray from a safe distance. Contain fire-fighting water to prevent environmental release.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	**For non-emergency personnel** Contain the spill (bunding/absorbent) provided there is no additional risk. Product is slippery when spilled – caution on walking surfaces. Use appropriate PPE (see section 8). **For emergency responders** Wear protective equipment. Keep unprotected persons away. See section 8.
Environmental precautions	Avoid release to drains, watercourses or soil; ethylene glycol exerts high biochemical oxygen demand (BOD) and is toxic to animals if ingested. Notify the relevant authority in case of significant environmental release.
Methods and materials for containment and cleaning up	Absorb with inert absorbent material (sand, vermiculite) and place in a labelled, closed container for disposal. Wash the residual area with water.
Reference to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use
Avoid contact with skin and eyes and avoid ingestion. Use in well-ventilated areas. Do not transfer or store in unlabelled or food/beverage containers due to sweet taste and toxicity risk.

B. Technical recommendations for the prevention of fires and explosions
No special fire-prevention measures are required beyond standard combustible liquid handling practice (keep away from open flame/high heat sources).

C. Technical recommendations on general occupational hygiene
Do not eat or drink during the process; wash hands afterwards with suitable cleaning products.

D. Technical recommendations to prevent environmental risks
Provide tight electrical equipment well protected against corrosion. Avoid atmospheric emissions. Warn people about the dangers of the product. Follow the protective measures given in the exposure controls/personal protection section. In industrial installations, apply the rules for the prevention of major accidents (consult an expert).

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	0°C (avoid freezing, though not damaging to product quality)
Maximum Temp.	40°C
Maximum time	24 Months in original sealed packaging

B. General conditions for storage
Store in a cool, dry, well-ventilated area, away from strong oxidizing agents, in tightly closed, clearly labelled containers, secured against unauthorised/accidental access due to ingestion risk. For additional information see subsection 10.5.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Ethylene Glycol (aerosol) CAS: 107-21-1	ACGIH TLV – Ceiling (C)	100 mg/m³ (aerosol only; vapour exposure negligible at room temperature)

Appropriate engineering controls

It is recommended to use localized extraction in the work area as a collective protection measure to avoid exceeding occupational exposure limits, in addition to individual protective equipment (PPE) as needed. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection
Not normally required at ambient temperature due to low volatility. For heated operations producing mist/vapour, use an organic vapour respirator.

C. Specific protection for the hands
Chemical-resistant gloves (nitrile or neoprene).

D. Eye and face protection
Safety glasses or chemical splash goggles.

E. Bodily protection
Standard work clothing / coveralls.

F. Additional emergency measures
Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available.

Environmental exposure controls
Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid
Appearance	Clear, viscous liquid
Color	Colorless
Odor	Odorless (slight, if any)
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	197°C
Vapour pressure at 20°C	~0.06 mmHg (very low)
Evaporation rate (n-BuAc = 1)	<0.01 (very slow)
Product Description	
Density / Relative density at 20°C	1.113 g/cm³
Dynamic / Kinematic viscosity at 20°C	~21 mPa·s
Concentration	≥ 99%
pH (aqueous solution)	~6.5–7.5 (neutral)
Vapour density (air = 1)	~2.1
Partition coefficient n-octanol/water (log Pow)	-1.36
Solubility in water at 20°C	Miscible in all proportions
Decomposition temperature	Not established
Melting point/freezing point	-13°C
Flammability	
Flash Point	111°C (closed cup)
Flammability (solid, gas)	Non-applicable (liquid); combustible, not readily ignitable at ambient temperature
Autoignition temperature	398°C
Lower / Upper flammability limit	3.2% / 15.3% (vol. in air, approx.)
Particle Characteristics	
Median equivalent diameter	Non-applicable (liquid)

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

Other information

Explosive properties	Not classified as explosive
Oxidising properties	Not an oxidizer
Corrosive to metals	Not classified
Heat of combustion	~19.2 kJ/g (approx.)
Surface tension at 20°C	~48 mN/m
Refraction index	~1.431

10. STABILITY AND REACTIVITY

Reactivity

No reactivity hazard under normal conditions of storage, handling and use. May react with strong oxidizing agents.

Chemical stability

Chemically stable under the indicated conditions of storage, handling and use.

Possibility of hazardous reactions

Under recommended storage conditions no hazardous reactions are expected. High-temperature contact with strong oxidizers can be exothermic.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid high heat/open flame	Not applicable	Not applicable (miscible with water)

Incompatible materials

Strong Oxidizing Agents	Strong Acids/Bases
Avoid contact – exothermic reaction possible	Avoid contact

Hazardous decomposition products

Carbon monoxide and carbon dioxide on combustion; no hazardous decomposition under normal storage.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)

Harmful if swallowed. Ethylene glycol is metabolised to glycolic and oxalic acid, which can cause metabolic acidosis, central nervous system depression, cardiopulmonary effects and severe, potentially fatal kidney damage; effects may be delayed.

B. Inhalation (acute effect)

Low volatility at room temperature limits inhalation risk under normal use; heated mist/vapour may cause mild irritation of the respiratory tract.

C. Contact with skin and eyes (acute effect)

May cause mild irritation on contact with skin or eyes; not classified as a skin/eye irritant under standard criteria.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Classification criteria for carcinogenicity and mutagenicity are not met based on available data. Some animal studies show developmental effects at high, maternally toxic doses; not classified for reproductive toxicity under GHS based on available weight-of-evidence data. IARC: Group 3 (not classifiable as to carcinogenicity to humans).

E. Sensitizing effects

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure

Classification criteria are not met based on available data (beyond acute oral toxicity effects noted above).

G. Specific target organ toxicity (STOT) – repeated exposure

Repeated high-dose ingestion in animal studies has been associated with kidney effects (calcium oxalate crystal formation); classification criteria under GHS are not met for the substance as marketed based on available data.

H. Aspiration hazard

Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Mono Ethylene Glycol (industrial grade) CAS: 107-21-1	LD50 oral: 4700 mg/kg	Rat
	LD50 dermal: >9530 mg/kg	Rabbit
	LC50 inhalation: Not established (low volatility)	–

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under standard GHS criteria, but exerts significant biochemical oxygen demand (BOD).

Toxicity

Identification	Acute Toxicity	Species	Genus
Mono Ethylene Glycol CAS: 107-21-1	LC50: >10000 mg/L (96h)	Pimephales promelas	Fish
	EC50: >10000 mg/L (48h)	Daphnia magna	Crustacean

Persistence and degradability

Readily biodegradable (>70% BOD in standard OECD tests).

Bioaccumulative potential

Low bioaccumulation potential (log Pow -1.36).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
~1 (very low)	~6×10^{-8} atm·m³/mol (very low)	No	Miscible, disperses readily

Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of Annex XIII.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Preferably recover/recycle where feasible. Otherwise incinerate in a licensed hazardous waste incinerator with emission control, or treat via biological wastewater treatment in accordance with local discharge permits. For packaging: drain thoroughly before disposal or recycling.

Refer to national and local regulations on waste management, including the Hazardous and Other Wastes (Management and Transboundary Movement) Rules.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	Not regulated
14.2 UN proper shipping name	Non-applicable (not classified as a dangerous good under ADR/IMDG/IATA)
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	Not regulated
14.2 UN proper shipping name	Non-applicable (not classified as a dangerous good under ADR/IMDG/IATA)
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	EmS Codes: Not applicable | Limited quantities: Not applicable | Segregation group: Not relevant
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	Not regulated
14.2 UN proper shipping name	Non-applicable (not classified as a dangerous good under ADR/IMDG/IATA)
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H302: Harmful if swallowed.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

The United Nations Economic Commission for Europe (UNECE); European Chemicals Agency (ECHA) classification and labelling inventory; ACGIH Threshold Limit Values.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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