

SAFETY DATA SHEET

Triethylene glycol

Section-1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance/preparation:

Chemical name: TRI ETHYLENE GLYCOL (TEG)

Formula: C₆-H₁₄-O₄

Component: TRIETHYLENE GLYCOL

Cas Number: 112-27-6

EC Number (EINECS): 203-953-2

Synonyms: Trigen, 2,2-Ethylenedioxyethanol, Trigol.

1.2 Use of the substance /preparation:

Used to dissolve nitrocellulose and various gums and resins; has humectant properties, Unsaturated polyester resin comonomer; dehydration agent (natural gas processing); plasticizer (polyvinyl alcohol); solvent (printing inks, dyes, pharmaceuticals, cosmetics); tobacco humectant.

1.3 Contact details of the Supplier

SERVOCHEM L.L.C.

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P.O. Box 7124, Dubai, U.A.E

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Section 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance/preparation: Hazard class and category code.

Classification of the substance or mixture: Not classified.

GHS Label: GHS07: Warning.



Signal word: Warning. Due to DEG

Details of statements:

Hazard Statements	H 302: Harmful if swallowed.
Precautionary Statement Prevention	P102: Keep out of reach of children. P103: Read label before use. P264: Wash ... exposed <i>parts of the body</i> thoroughly after handling. P270: Do not eat, drink or smoke when using this product.

Precautionary Statement Response	P101: If medical advice is needed, have product container or label at hand. P301 IF SWALLOWED: P312 Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth.
Precautionary Statement Storage	No storage statements
Precautionary Statement Disposal	Follow local regulation

Hazard ratings:

NFPA HAZARD CODES	RATINGS SYSTEM
HEALTH: 1	0 = No Hazard
FLAMMABILITY: 1	1 = Slight Hazard
REACTIVITY: 0	2 = Moderate Hazard
	3 = Serious Hazard
	4 = Severe Hazard

2.2 Information pertaining to particular dangers for human:

Irritating if inhaled. Irritating to eyes, skin and respiratory organs.

2.3 Information pertaining to particular dangers for the environment: NA

2.4 Other adverse effects:

Flammable and easily ignitable substance. Mixtures keep above ground and after ignition they spread fast into far distances. Ignition possible when exposed to hot surfaces, sparks, naked flames and by electrostatic discharges too.

Section 3 – COMPOSITION & INFORMATION ON INGREDIENTS

Ingredients / Hazardous	CAS No.	EC No.	Percentage
Tri Ethylene Glycol/Yes	112-27-6	203-953-2	99.50% min.
Di Ethylene Glycol/Yes	111-46-6	203-872-2	*0.25% max.
Acidity (As Acetic Acid) /Yes	64-19-7	200-580-7	.01% max.
Mono Ethylene Glycol/Yes	107-21-1	203-473-3	*0.25% (wt.) max.

Note: Total contents of MEG+DEG=*0.25%.

Section 4 – FIRST AID MEASURES

4.1 General advice

IMMEDIATE MEDICAL ATTENTION IS REQUIRED AFTER INHALATION OR AFTER SWALLOWING.

In case of health troubles or doubts, seek medical advice immediately and show this Material Safety Data Sheet.

4.2 Inhalation

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is

difficult, give oxygen.

4.3 Skin contact

In case of contact, immediately wash skin with soap and copious amounts of water.

4.4 Eye contact

Contamination of the eyes should be treated by immediate and prolonged irrigation with copious amounts of water. Assure adequate flushing of the eyes by separating the eyelids with fingers.

4.5 Swallowing

If patient is conscious and without convulsion, immediately try to induce vomiting. Never give anything by mouth to an unconscious person, just put patient into a stabilised position. Seek medical advice immediately.

SYMPTOMS AND EFFECTS: nausea, vomiting, convulsions, irregular heartbeat.

Section 5 – FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Foam, powder, CO₂.

Cool containers with water spray.

5.2 Extinguishing media to be avoided

Water.

5.3 Caution about specific danger in case of fire and fire-fighting procedures

Vapours may travel considerable far distances and cause subsequent ignition.

Vapours is heavier than air, may cumulate along the ground and in enclosed spaces

– danger of explosion. Do not empty into drains. When burning, it emits carbon monoxide, carbon dioxide and irritant fumes. Containers with the substance exposed to excessive heat may explode.

5.4 Special protective equipment for fire-fighters

Wear full protective fire-resistant clothing and self-contained breathing apparatus.

Section 6 –ACCIDENTAL RELEASE MEASURES

6.1 Person-related safety precautions

Isolate hazard area. Evacuate all unauthorized personnel not participating in rescue operations from the area. Avoid entry into danger area. Remove all possible sources of ignition. Stop traffic and switch off the motors of the engines. Do not smoke and do not handle with naked flame. Use explosion-proof lamps and non-sparking tools. Avoid contact with the substance. Apply recommended full protective personal equipment. When escaping from the contaminated area, wear mask with cartridge against organic vapours. In case of general average, evacuate personnel from danger area.

6.2 Precautions for protection of the environment

Prevent from further leaks of substance.

6.3 Recommended methods for cleaning and disposal

Soak up residues with compatible porous material and forward for disposal in closed containers. Dispose off under valid legal waste regulations.

Section 7 –HANDLING AND STORAGE

7.1 Information for safe handling

Observe all fire-fighting measures (no smoking, do not handle with naked flame and

remove all possible sources of ignition). Take precautionary measures against static discharges. Wear recommended personal protective equipment and observe instructions to prevent possible contact of substance with skin and eyes and inhalation. Avoid leak to environment.

7.2 Information for storage

Storerooms should meet the requirements for the fire safety of constructions and electrical facilities and should be in conformity with valid regulations. Store in cool, well-ventilated place with effective exhaust, away from heat and all sources of ignition. Store in tightly closed container. Do not store together with oxidizing agents. Take precautionary measures against static discharges. Avoid leak to environment.

7.3 Information for specific use

Not applicable.

Section 8 –EXPOSURE CONTROL & PERSONAL PROTECTION

8.1 Occupational Exposure Limits: NA

NA: Data not available

8.2 Occupational exposure controls

Collective protection measures: General and local ventilation, effective exhaust. Individual protection measures: Personal protective equipment (PPE) for the protection of eyes, hands and skin corresponding with the performed labour has to be kept at disposition for the employees. In the case of continuous use of this equipment during constant work, safety breaks have to be scheduled, if the PPE-character requires this. All PPE have to be kept in disposable state and the damaged or contaminated equipment has to be replaced immediately.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

HANDS	EYES	BODY	RESPIRATORY
			

Respiratory protection: If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-face piece respirator, airline hood, or full face piece self-contained breathing apparatus. protective mask with canister A (brown coloured, protecting against organic vapours), self-contained breathing apparatus.

Eye protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Hand protection: Wear gloves of impervious material.

Body protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Protective coverall antistatic design recommended, impervious when handling big amounts (nitrile rubber), sealed leather footwear (free from synthetic adhesives)

Hygiene Measures: Wash hands, forearms and face thoroughly after handling. 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.

Section 9 –PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless Syrupy liquid
Odour	Odorless
Solubility in water	Miscible
Relative Density (H ₂ O=1)	1.1 at 15 °C
Boiling Point °C	286 °C
Melting Point °C	-7.3 °C
Relative Vapour Density (Air=1)	NA
Flash point °C	176 °C (Closed cup)
Auto ignition °C	371 °C
Vapour pressure (mmHg) @ 174 °C	20 mmHg @ 174 °C
Molecular weight	150.17
Explosive limits in air % by volume	LEL 0.9% UEL9.2%
pH	NA
Viscosity cP @20 °C	47.8
Pour point	NA
Evaporation rate (water=1)	NA
Octanol/water partition coefficient log Kow	NA
% volatile	NA

Section 10 –CHEMICAL STABILITY AND REACTIVITY INFORMATION

10.1 Conditions to avoid

Prolonged exposure of containers or tank cars to heat or fire may cause the material to expand with possible container rupture

10.2 Material to avoid

AIR AND WATER REACTIONS:

Water soluble.

TRIETHYLENE GLYCOL is a ether-alcohol derivative. The ether being relatively unreactive. Flammable and/or toxic gases are generated by the combination of alcohols with alkali metals, nitrides, and strong reducing agents. They react with oxoacids and carboxylic acids to form esters plus water. Oxidizing agents convert alcohols to aldehydes or ketones. Alcohols exhibit both weak acid and weak base behavior. They may initiate the polymerization of isocyanates and epoxides. Reacts with strong oxidants. [Handling Chemicals Safely 1980. p. 932].

REACTIVE GROUPS: Alcohols and Polyols; Ethers

10.3 Hazardous decomposition products

Thermal decomposition generates carbon monoxide and carbon dioxide.

Polymerization: Polymerization occurs if heated in sunlight or presence of air.

Section 11 –TOXICOLOGICAL INFORMATION

11.1 Acute effects

Product irritates eyes and skin. High vapour concentrations irritate respiratory system and eyes and may lead to fast coma and death

Acute toxicity data:

Parameter	Route	Species	Values	Exposure period
LD50	Oral	Mouse	18500 mg/kg	Not applicable

Data Reference: "http://ptcl.chem.ox.ac.uk/", <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>.

11.2 Repeated dose toxicity

Chronic effects cause irritation

11.3 Sensitisation

May cause skin irritation.

11.4 CMR effects (carcinogenity, mutagenicity, toxicity for reproduction)

Not a carcinogen

11.5 Toxicokinetics, metabolism, distribution

Not applicable.

Section 12 – ECOLOGICAL INFORMATION

12.1 Ecotoxicity data:

Parameter	Route	Species	Values	Exposure period
LC50	Inhalation	Menidia beryllina	10000 ppm	96 Hours

12.3 Persistence and degradability

Substance is biodegradable

12.4 Bioaccumulative potential: NA.**12.5 Results of PBT assessment Persistence and Degradation: NA****12.6 Other adverse effects**

Environmental Fate: Tri Ethylene Glycol is expected to have high mobility in soil, Volatilization from water surfaces is expected.

Section 13– DISPOSAL CONSIDERATION

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

13.1 Recommended disposal methods for the substance /preparation

Product reuse or disposal in accordance with valid waste legislative regulations.

13.2 Recommended disposal methods for contaminated packaging

Product is transported in tank-vehicles.

13.3 Waste management measures that control exposure of humans and environment

Proceed in accordance with valid health, air and water legislative regulations.

13.4 Waste regulation: Follow local regulation.

Section 14– TRANSPORT INFORMATION

International Transport Regulation:**ADR/RID (Road/Rail), IMDG (Sea) and ICAO/IATA (Air)**

The product is not regulated

14.1

Proper Shipping Name: Not classified

Hazard Class: Not classified

UN Number: Not classified

Emergency Action Code: Not classified

14.2 Special transport precautionary measures

Not applicable.



Section 15– REGULATORY INFORMATION

MSDS format on a 16 Section based on guidance provided in:

Indian Regulation:

Manufacture, Storage and Import of Hazardous Chemicals Rule, 1989.
The Factories Act 1948

International Regulations:

European SDS Directive
ANSI MSDS Standard
ISO 11014-1 1994
WHMIS Requirements

The Globally Harmonized System of Classification and Labeling of Chemicals endorsed by The UN Economic and Social Council

* Risk phrases: R22 Harmful if swallowed.

*Safety phrases: S2 Keep out of reach of children, S46 If swallowed, seek medical advice immediately and show the container or label.

*These standard risk and safety phrases for use when interpreting Material Safety data Sheets are derived from the European Union Regulation, CHIP Regulations - Chemicals (Hazard Information and Packaging for Supply). They are required to be used in Materials Safety Data Sheets to identify potential hazards and offer safe handling advice.

Section 16 – OTHER INFORMATION

Training instructions

Personnel handling the product has to be acquainted demonstrably with its

hazardous properties, with health and environmental protection principles related to the product and first aid principles.

Tremcard details: Refer Section 14

Local bodies involved (Applicable only with in India): Local District Authorities and Local Crisis Group

Sources of data used to compile the Material Safety Data Sheet

Disclaimer:

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