

SAFETY DATA SHEET

According to Regulation (EC) N° 1907/2006 (REACH)

1. Substance/preparation and company name

Trade Name Luzar Organico -40°C

Typical Applications Coolant – Antifreeze for closed cooling circuit.

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2. Hazard identification



H 302: Harmful if swallowed.

3. Composition/Information on ingredients

Ethylene Glycol with corrosion inhibitors.

Chemical name	CAS-No	EC number	Content	Symbol(s)	Phrases
Ethanediol	107-21-1	203-473-3	<55%	GHS07 GHS08	H302, H373 P260, P264, P270, P301, P330, P501

See section 16 for explanation of R-phrases.

4. First aid measures

General advice

Remove contaminated clothing.

On contact with eyes

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On skin contact

Wash thoroughly with soap and water.

If inhaled

If difficulties occur after vapour/aerosol has been inhaled remove to fresh air and seek medical attention.

Inhalation of vapour, fumes or spray may cause irritation of the throat.

On Ingestion

Do not induce vomiting. Get medical attention immediately. If the patient is completely conscious, give a glass of water to drink. If the medical attention is delayed and the patient has ingested some few grams of the product, give approx. 100 ml (or 100gr) of a spirit drink, e.g. Whisky of 40 vol.-%. For children, give proportionally less liqueur, with a dosing rate of 8 ml (8gr, or 1½ tea spoon) of liqueur for every 5 kg of body weight, or 2 ml / kg body weight (36 ml for a child of 18 kg).

Note for the doctor/medical attention

If some milliliters of ethylene glycol have been ingested, the immediate supply of ethanol can counteract the toxic effects (metabolic acidosis, kidney damage).

Consider a hemodialysis or a peritoneal dialysis, plus 100mg tiamina, plus 50 mg piridoxina intravenous every 6 hours. If ethanol is used, a therapeutically effective concentration in blood of 100-150 mg/dl can be achieved, by means of a fast shock dosis, followed by a continued intravenous infusion. Consult standard literature for treatment details. Metilpirazol (Antizol) (R) is an effective blocker of alcohol dehydrogenase and should be used, if available, for treatments of intoxication of ethylene glycol, di- or triethylene glycol, ethylene glycol butyl ether, or methanol. Protocol of Fomepizol (F): supply 15 mg/kg by intravenous line, follow a dosis of 10 mg/kg every 12 hours; after 48h, increase the maintaining dosis up to 15 mg/kg every 12 h. Continue the supply of Fomepizole until methanol, ethylene glycol, diethyleneglycol or tri ethylene glycol aren't detectable in the blood. The signs of intoxication include the metabolic acidosis of lack of anion, CNS depression, tubular kidney disease, possible affection of the cranial nerve in final step. The respiratory symptoms, including the pulmonary edema can appear in a delayed way. The persons that have suffered an important exposition will be under observation for 24-48 hours in order to detect respiratory dysfunction. Maintain an adequate ventilation and oxygenation of the patient. In case of strong intoxication, respiratory help can be necessary by means of mechanic ventilation and respiration with positive pressure. If a stomach pump is carried out, an endotracheal and/or esophageal control is recommended. The risk of an pulmonary aspiration is evaluated regarding the toxicity. In case of burns, treat them like thermal burns after their decontamination. The treatment of the exposition is orientated towards the control of symptoms and the clinic conditions of the patient.

5. Fire fighting measures

Suitable extinguishing media:

Water spray, alcohol resistant foam, dry extinguishers, carbon dioxide (CO₂)

Specific hazards

Evolution of fumes/fog.

Vapours heavier than air.

Prevent ethylene glycol from decomposing into acetaldehyde, at 500 – 600°C.

Special protective equipment

In case of fire, stay in the risk zone only if you wear a fully equipped firefighting suit.

Further Information

Contaminated extinguishing water must be disposed according to official regulations.

6. Accidental release measures

Personal precautions:

Use personal protective clothing.

Do not inhale vapours/aerosol.

Environmental precautions:

Do not discharge into drains or surface waters.

Methods for cleaning up/taking up:

Large amount: Pump off products.

Residues/spills: Bind the liquid by using a suitable absorbent material and dispose it according to the regulations.

7. Handling and storage

Handling

Ensure thorough ventilation of stores and working areas.

Keep away from away from combustive substances.

Keep away from food and beverages.

Protection against fire and explosion.

Take precautionary measures against static discharges.

Storage

Product is hygroscopic. Containers should be stored tightly sealed in dry place. Since zinc is not compatible with ethylene glycol, storage in galvanized containers is not recommended.

8. Exposure controls and personal protection

General safety and hygiene measures:

Wash hands and forearms after handling.

Do not smoke, eat or drink during manipulations.

Occupational exposure limit:

Vapours of monoethylene glycol (VLE): 125 mg/m³ (50 ppm) for 15 minutes.

Personal protective equipment:

Respiratory protection:

Only in case of release of fumes/fog. Well ventilated areas are recommended for manipulation. Required when vapours/aerosols are generated. Filter A (P2).

Hands:

Chemical resistant protective gloves are recommended.

Eyes:

Safety glasses with side-shields.

PNEC Values:

Pure monoethylene glycol data

<u>Fresh water:</u>	10 mg/l
<u>Sea water:</u>	1 mg/l
<u>Water (intermittent releases):</u>	10 mg/l
<u>Fresh water sediment:</u>	20,9 mg/Kg dw
<u>Sea sediment:</u>	No Data mg/kg dw
<u>Soil:</u>	1,53 mg/kg dw
<u>Sewage Treatment Plant:</u>	1995 mg/l

9. Physical and Chemical properties

Physical state	Liquid
Color	Fluorescent yellow.
Odour	Weak, characteristic.
pH	8,5-9,5
Boiling point/range	aprox.109°C
Solidification temperature	-37°C
Vapour pressure at 20°C	0.1 mbar a 20°C
Flash point	>100°C
Lower explosion limit	2,6% V/V
Upper explosion limit	12,6% V/V
Ignition temperature	>400°C
Density	1.07-1.08 g/cc at 20°C
Solubility in water	Unlimited.
Solubility in other solvents	Soluble in polar solvents.

10. Stability and reactivity

Stability / instability

Stable in the recommended storage conditions. See Storage, section 7.

Conditions to avoid.

The exposition to high temperatures can cause the decomposition of the product. The generation of gas during the decomposition can cause pressure in closed systems.

Incompatible materials:

Avoid contact with: Strong acids, strong bases, and strong oxidants.

Dangerous Polymerization

Not to happen.

Thermic decomposition

The decomposition products depend on the temperature, air supply and the presence of other materials. The decomposition products can include, without being limited to: aldehydes, ketones, organic acids.

11. Toxicological data

Pure monoethylene glycol data

Acute toxicity:

LD50 (oral, rat): 7712 mg/Kg. (Literature)

LD50 (dermal, rabbit): >5000 mg/Kg. (Literature)

LC50 (inhalation, rat, 8 hours): >183 ppm (Literature)

Based on the individual component literature data, not tested as mixture.

LD50 (oral, rat): 18362 mg/Kg. (Literature)

LD50 (dermal, rabbit): >11905 mg/Kg. (Literature)

Ingestion comments

In case of persons, the oral toxicity of ethylene glycol should be considered as moderate, although in animal experiments it is shown a lower toxicity. The accidental ingestion of small amounts in consequence of normal handling operations probably do not cause injury. However big amounts can cause severe injuries, including death. It can cause nausea, vomiting, abdominal pain. An excessive exposition can produce effects on CNS, cardiovascular effects (metabolic acidosis), and kidney damage.

For ethylene glycol:

Lethal dosis, adult human, 100 ml.

DL50, rat, 6.000-13.000 mg/kg

Eye contact

Can produce a light eye irritation. It is not probable to produce an injury of the cornea.

The vapors or similar can produce eye irritation.

Skin contact

A brief contact is essentially not skin irritant. A continued exposition can cause a little skin irritation with local reddening. A repeated contact can produce skin irritation with local reddening.

Skin absorption

It is no probable that the product is absorbed in dangerous amounts through a long skin contact.

A repeated exposition of the skin to large amounts can lead to an absorption of dangerous amounts. The massive contact with damaged skin or with hot parts leading to thermal burns, can lead to an absorption in potentially lethal amounts.

Inhalation

The exposition to vapors at room temperature is at a minimum, due to the low volatility. With good ventilation, a single exposition is not expected to cause adverse effects. With hot material or at little ventilated places, vapor or similar can accumulate, provoking respiratory irritation and symptoms such as head ache and nauseas.

<i>Exposition</i>	<i>Parameter</i>	<i>Method</i>	<i>Valuet</i>	<i>Exposition period</i>	<i>Animal</i>	<i>Value</i>
Ingestion	DL50	OECD 401	7.712 mg/Kg	-	Rat	Experimental
Skin	DL50	OECD 402	>22.270 mg/Kg.	24 h	Rabbit	Experimental
Inhalation	CL50	OECD 403	3,95 mg/l	7 h	Rat	Experimental

Repeated dose toxicity

An excess of repeated expositions can cause an irritation of the higher respiratory lines. In case of humans, the effects have been reported for the following organs: CNS. The observations in human beings include: nystagmus (involuntary eye movement). Effects in animals have been reported for kidneys and livers.

Chronic and carcinogenic toxicity

Ethylene glycol doesn't cause cancer according to long term animal experiments.

Developmental toxicity

Based on animal studies, the ingestion of ethylene glycol in large amounts is apparently the major and possibly the only way of exposition for producing birth defects. The exposition by inhalation or skin contact, that is the principal exposition ways at work, had most little effects on the fetus at animal studies.

Reproductive toxicity

The ingestion of large amounts of ethylene glycol has revealed a interference with the reproduction at animals.

Genetic toxicity

The genetic toxicity studies (in vitro) have produced negative results. The studies of genetic toxicity with animals have produced negative results.

12. Ecological data

Pure monoethylene glycol data

CHEMICAL DESTINATION

Movement and distribution

The potential bioconcentration is low ($BCF < 100$, or $\log Pow < 3$). The movement potential in the soil is very high (Poc between 0 and 50). Considering that the Henry constant is very low, the volatility proceeding natural water bodies or humid soils, it is not expected to be an important process concerning the final destination of the product.

Henry's constant: $8,05E-09 \text{ atm}\cdot\text{m}^3/\text{mol}$; at 25°C estimated

Partition coefficient, n-octanol / water – $\log Pow$: -1,36 measured

Partition coefficient, organic carbon in soil / water (Koc): 1, estimated

Persistence and Degradability

The material is easily biodegradable. Passes the OECD experiments of easy biodegradability. The material is biodegradable in the final term. Reaches more than 70% in mineralization experiments of the OECD of inherent biodegradability.

<i>Method</i>	<i>Value</i>	<i>Period</i>	<i>Determination</i>
OCDE 301F	> 94%	28 days	Experimental
OCDE 302B	90%	1 day	Experimental

Ecotoxicity

The material is not classified as harmful to aquatic organisms ($LC_{50}/EC_{50}/IC_{50}$ higher than 100 mg/l in the majority of sensitive species)

Toxicity to fish:

Oncorhynchus mykiss (Rainbow Trout) 18.000 – 46.000 mg/l LC_{50} 96 h

Aquatic invertebrates:

Daphnia Magna (Water flea) 46.300 – 51.100 mg/l EC_{50} 48h

Aquatic plants:

Selenastrum capricornutum (green algae), inhibition of biomass growth, 9.500 – 13.000 mg/l IC_{50} 96 h

Microorganisms:

CE_{50} , Experiment 209, OECD; Activated sludge, respiration inhibition, 30 minutes: 225 mg/l

13. Disposal considerations

In case the product is eliminated without being used, neither being contaminated, it should be considered as a hazardous waste, according to the European Directive (EEC/689/91). Any practice of disposal shall meet with national and regional legislation, as well as the municipal and local requirements regarding the hazardous waste management. For the disposal of used or contaminated waste, additional evaluations may be required.

Don't spill to sewer, soil or water course.

14. Transport information

Not classified as hazardous under transport regulations.
(ADR / RID / ADNR / IMDG/GGVSee ICIAO/IATA)

15. Regulatory information

Regulations of the European Union (labeling) / National legislation / Regulations:



H302: Harmful if swallowed

USA. Toxic Substances Control Act (TSCA).

All components of this product are included in the inventory list of the TSCA or are exempted of the requirements of the TSCA, according to 40 CFR 720.30 European inventory of commercialised chemical products (EINECS).

This product is in the EINECS inventory.

16. Further information

GHS hazard statements that are mentioned in this sheet:

Risk phrases: H302: Harmful if swallowed.
H373: May cause damage to the kidney through prolonged or repeated exposure

Precaution phrases: P260: Do not breathe vapours.
P264: Wash yourself thoroughly after handling.

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

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

P330: Rinse mouth.

Disposal

P501: Dispose of contents/container in accordance with regulation currently in force.

Abbreviations and acronyms:

PNEC: Predicted No Effect Concentration.

Intermittent Release: Intermittent but only recurring infrequently i.e. less than once per month and for no more than 24 hours.

This safety data sheet is intended to provide information and recommendations as to: 1. how to handle chemical substances and preparations in accordance with the essential requirements of safety precautions and physical, toxicological and ecological data. 2. how to handle, store, use and transport them safely.

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