



EEC - SAFETY DATA SHEET

acc. 1907/2006/EG [REACH]

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1. Substance/preparation, and company name

Trade name: TYFOCOR[®] G-LS ready-to-use, frost protection -28 °C
Use: Heat transfer fluid for thermal solar systems
Company: TYFOROP Chemie GmbH, Anton-Rée-Weg 7, D - 20537 Hamburg
Tel: +49 (0)40 -20 94 97-0; Fax: -20 94 97-20; e-mail: info@tyfo.de
Emergency information: Tel: +49-(0)40 -20 94 97-0

2. Hazard identification

No particular hazards known.

3. Composition/information on ingredients

Chemical nature:

Aqueous solution of propane-1,2-diol (CAS-No.: 57-55-6) with corrosion inhibitors.

Hazardous Compounds:

1,1'-Iminodipropyl-2-ol	Content (w/w): > 1 % - < 3 %	CAS No: 110-97-4
	EC No: 203-820-9	Hazard symbol: Xi
	INDEX No: 603-083-00-7	R-phrases: 36

The wording of the hazard symbols and R-phrases is specified in Chapter 16 if dangerous ingredients are mentioned.

4. First aid measures

General advice: Remove contaminated clothing.
If inhaled: If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.
On skin contact: Wash thoroughly with soap and water.
On contact with eyes: Wash affected eyes for at least 15 minutes under running water with eyelids held open.
On ingestion: Rinse mouth and then drink plenty of water.
Note to physician: Symptomatic treatment (decontamination, vital functions), no known specific antidote.

5. Fire fighting measures

Suitable extinguishing media: The product is non-flammable. Water spray, alcohol-resistant foam, dry extinguishers, and carbon dioxide (CO₂) are suitable for extinguishing environmental fire.
Specific hazards: Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.
Special protective equipment: In case of fire, wear a self contained breathing apparatus.
Further information: The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:	No specific measures necessary.
Environmental precautions:	Contain contaminated water/fire fighting water. Do not discharge into natural waters without pretreatment (biological treatment plant).
Methods for cleaning up / taking up:	For large amounts: Pump off product. For residues: Bind the liquid by using a suitable absorbent material and dispose of in accordance with the regulations. Wash away spills thoroughly with large quantities of water. In case of release of larger quantities which might flow into the draining system or waters, contact appropriate authorities.

7. Handling and storage

Handling:	No specific measures necessary.
Protection against fire and explosion:	No specific measures necessary.
Storage:	Containers should be stored tightly sealed in a dry place. Storage in galvanized containers is not recommended.

8. Exposure controls and personal protection

Respiratory Protection:	Respiratory protection in case of release of fumes/fog.
Hand protection:	Chemical resistant protective gloves (EN 374). Recommended: nitrile rubber, protective index 6. Manufacturers directions for use should be observed because of great diversity of types.
Eye protection:	Safety glasses with side-shields (frame goggles, EN 166)
General safety and hygiene measures:	The usual precautions for the handling of chemicals must be observed.

9. Physical and chemical properties

Form:	liquid.	
Colour:	violet.	
Odour:	product specific.	
Freezing point:	ca. -25 °C	(ASTM D 1177)
Solidification temperature:	ca. -31 °C	(DIN 51583)
Boiling temperature:	>100 °C	(ASTM D 1120)
Flash point:	not applicable.	
Lower explosion limit:	2.6 vol %	(Propylene glycol)
Upper explosion limit:	12.6 vol %	(Propylene glycol)
Ignition temperature:	not applicable.	
Vapour pressure at 20 °C:	20 mbar	
Density (20 °C):	ca. 1.030 g/cm ³	(DIN 51757)
Solubility in water:	unlimited.	
Solubility in other solvents:	soluble in polar solvents.	
pH value (20 °C):	9.0-10.5	(ASTM D 1287)
Viscosity (kinematic, 20 °C):	ca. 5.0 mm ² /s	(DIN 51562)

10. Stability and reactivity

Substances to avoid:	Powerful oxidizing agents.
Hazardous reactions:	No hazardous reactions if stored and handled as prescribed.
Hazardous decomposition products:	No hazardous decomposition products if stored and handled as prescribed.

11. Toxicological data

LD50/oral/rat: >2000 mg/kg Primary skin irritation/rabbit: non-irritant (OECD Guideline 404) Primary irritation of the mucous membrane/rabbit: non-irritant (OECD Guideline 405)	
Additional Information:	The product has not been tested. The statement has been derived from the properties of the individual components.

12. Ecological data

Ecotoxicity:	Toxicity to fish: <i>Leuciscus idus</i> /LC50 (96 h): >100 mg/l Aquatic invertebrates: EC50 (48 h): 100 mg/l Aquatic plants: EC50 (72 h): >100 mg/l Microorganisms/effect on activated sludge: DEV-L2 >1000 mg/l Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.
Assessment of aquatic toxicity:	The product has not been tested. The statement has been derived from the properties of the individual components.
Persistence and degradability:	Elimination information: Test method: OECD 301A (new version) Method of analysis: DOC reduction Degree of elimination: >70 % Evaluation: Readily biodegradable.

13. Disposal considerations

The product must be dumped or incinerated in accordance with local regulations.	
Contaminated packaging:	Uncontaminated packs can be re-used. Packs that cannot be cleaned should be disposed of in the same manner as the contents.

14. Transport information

Not classified as hazardous under transport regulations.
(ADR RID ADN R IMDG/GGVSee ICAO/IATA)

15. Regulatory information

Regulations of the European union (Labelling) / National legislation / Regulations:

Directive 1999/45/EEC („Preparation Directive“): Not subject to labelling.

Other Regulations: None.

16. Further Information

Full text of hazard symbols and R-phrases if mentioned as hazardous components in chapter 3:
Xi: irritant. R36: Irritant to eyes.

Vertical lines in the left hand margin indicate an amendment from the previous version.

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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We provide this information and data according to our present level of knowledge and experience. No assurances concerning the characteristics of our product are hereby furnished.

Department which issued the data sheet: Dept. AT, Tel: +49 (0)40 -20 94 97-0