



EEC - SAFETY DATA SHEET

acc. 1907/2006/EG [REACH]

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Page 01 of 04

1. Substance/preparation, and company name

Trade name: TYFOCOR®
Use: Antifreeze / heat transfer fluid for heating and cooling 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

Special hazards to humans and the environment: Harmful if swallowed.

3. Composition/information on ingredients

Chemical nature: Ethylene glycol. Corrosion inhibitors.

Hazardous Compounds:

Ethanediol	Content (w/w): >90 % EC No: 203-473-3 INDEX No: 603-027-00-1	CAS No: 107-21-1 Hazard symbol: Xn R-phrases: 22
2-ethylhexanoic acid, sodium salt	Content (w/w): 2 % - 3 % EC No: 243-283-8	CAS No: 19766-89-3 Hazard symbol: Xn R-phrases: 63

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: fresh air, summon physician.

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 immediately and then drink plenty of water, seek medical attention.

Note to physician: Symptomatic treatment (decontamination, vital functions). Administer 50 ml of pure ethanol in a drinkable concentration.

5. Fire fighting measures

Suitable extinguishing media: Water spray, alcohol-resistant foam, dry extinguishers, carbon dioxide (CO₂).

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 local legislation.

6. Accidental release measures

Personal precautions:	Avoid excessive contact with skin and eyes. In case of release of larger amounts remove contaminated clothing and wash body down thoroughly with water. Hand protection. Pick up immediately as product renders floors slippery.
Environmental precautions:	Contain contaminated water/firefighting water. Do not discharge product into drains/surface waters/ground waters.
Methods for cleaning up / taking up:	Bind the liquid by using suitable absorbent material (saw dust, sand, etc.) 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:	Ensure thorough ventilation of stores and work areas.
Protection against fire and explosion:	Take precautionary measures against static discharges. If exposed to fire, keep containers cool by spraying with water.
Storage:	Product is hygroscopic. Containers should be stored tightly sealed in a dry place. Storage in galvanized containers is not recommended.

8. Exposure controls and personal protection

Components with workplace control parameters:	107-21-1: Ethylene glycol MAK value (D): $26 \text{ mg/m}^3 = 10 \text{ ppm}$ (TRGS 900 (DE)). Top limit category 1. There is no reason to fear a risk of damage to the developing embryo when the MAK value is adhered to. Skin resorption hazard: wear suitable gloves (see below).	
Personal protective equipment		
Respiratory Protection:	Do not inhale gases/vapours/aerosols.	
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:	Colourless.	
Odour:	Product specific.	
pH value (500 g/l, 20 °C):	7.0 - 9.0	
Solidification temperature:	<-18 °C	(DIN/ISO 3016)
Boiling point/range:	≥165 °C	(ASTM D 1120)
Flash point:	>120 °C	(DIN/ISO 2592)
Lower explosion limit:	3.0 % vol.	
Upper explosion limit:	15.0 % vol	

9. Physical and chemical properties (continuation)

Ignition temperature:	>200 °C	(DIN 51794)
Vapour pressure at 20 °C:	2 mbar	
Density at 20 °C:	ca. 1.12 g/cm ³	(DIN 51757)
Solubility in water:	unlimited.	
Solubility in other solvents:	soluble in polar solvents.	
Viscosity (kinematic, 20 °C):	20 - 30 mm ² /s	(DIN 51562)

10. Stability and reactivity

Substances to avoid:	Strong oxidizing agents.
Hazardous reactions:	No hazardous reactions when stored and handled according to instructions.
Hazardous decomposition products:	No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological data

LD50/oral/rat: >2000 mg/kg
LD50/dermal/rabbit: >2000 mg/kg (literature data)
Primary skin irritation/rabbit/: non-irritant

Information on Ethylene glycol:

Further information:	Developmental toxicity was observed after oral ingestion of high doses in studies with rats and mice, but this effect was not seen in a study with rabbits.
Experiences in humans:	Lethal dose if swallowed approx. 1.5 g/kg body weight. Lethal dose approx. 90-110 g for adults, and correspondingly less for children. Smaller doses can result in: consciousness is affected, kidney damage, damage to the central nervous system.
Additional information:	The statements are based on the properties of the individual components. There is no reason to fear a risk of damage to the developing embryo or fetus when the MAK value is adhered to. The whole of the information available provides no indication of a carcinogenic effect.

12. Ecological information

Ecotoxicity:	Toxicity to fish: <i>Leuciscus idus</i> /LC50 (96 h): >100 mg/l Aquatic invertebrates: <i>daphnia magna</i> /EC50 (48 h): >100 mg/l Aquatic plants: algae/EC50 (72 h): >100 mg/l Microorganisms/Effect on activated sludge: Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.
Persistence and degradability:	Elimination information: Test method: OECD 301A (new version) Method of analysis: DOC reduction Degree of elimination: >70 % Evaluation: readily biodegradeable.
Additional information:	Other ecotoxicological advice: Do not release untreated into natural waters. The product has not been tested. The statement was derived from the properties of the individual components.

13. Disposal considerations

TYFOCOR® 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 ADNR IMDG/GGVSee ICAO/IATA)

15. Regulatory information

Regulations of the European union (Labelling) / National legislation / Regulations:
Directive 1999/45/EEC („Preparation Directive“)

Hazard Symbol:	Xn:	Harmful.
R-phrases:	22:	Harmful if swallowed.
S-phrases:	2	Keep out of reach of children.
	24/25	Avoid contact with skin and eyes.
	46	If swallowed, seek medical advice immediately and show this container or label.

Hazard determinant component for labelling: Ethanediol

Other regulations: none

16. Further Information

Full text of hazard symbols and R-phrases if mentioned as hazardous components in chapter 3:
Xn: Harmful
22: Harmful if swallowed.
63: Possible risk of harm to the unborn child.

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.

No liability for damage occurred in connection with the use of this information or with the use, application, adaption, or processing of the products here described will be accepted. An exception will be made in the case that our legal representatives should come to be held responsible and liable by reason of intent or gross negligence. No liability will be accepted for damage indirectly incurred.

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