

Safety data sheet

according to 1907/2006/EC, Article 31



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1. Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name: Rifrost Outdoor**
- **Article number: 3301950 / 3301955 / 3301957**
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation**
Heat transfer fluid
antifreeze

- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Rittal GmbH & Co. KG
Auf dem Stützelberg
D – 35745 Herborn
- **Informing department:**
Department Marketing, Phone: 02772/505-9052
E-Mail: info@rittal.de
- **Emergency telephone number:**
Poison control center at the University Hospital, Bonn
Phone +49(0)228-19240

2. Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
Acute Tox. 4 H302 Harmful if swallowed.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Xn; Harmful
R22: Harmful if swallowed
- **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.
- **Label elements**
- **Labelling according to EU guidelines:**
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

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- **Code letter and hazard designation of product:**



Xn Harmful

- **Hazard-determining components of labelling:** ethane-1,2-diol
- **Risk phrases:** 22 Harmful if swallowed.
- **Safety phrases:**
 - 2 Keep out of the reach of children.
 - 24/25 Avoid contact with skin and eyes.
 - 46 If swallowed, seek medical advice immediately and show this container or label.
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3. Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with harmless additions
- **Dangerous components:**

CAS: 107-21-1 EINECS: 203-473-3 Reg.nr.: 01-2119456816-28	ethane-1,2-diol Xn R22 STOT wdh. 2, H373; Acute Tox. 4, H302	25-50 %
CAS: 7632-00-0 EINECS: 231-555-9	sodium nitrite T R25; O R8; N R50 Ox. Sol. 3, H272; Acute Tox. 3, H301; Aquatic Acute 1, H400; Eye Irrit. 2, H319	< 0,2 %
SVHC		
1330-43-4	boric acid, disodium salt	

- **Additional information** For the wording of the listed risk phrases refer to section 16.

4. First aid measures

- **Description of first aid measures**
- **General advice:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation**

Provide fresh-air circulation. If symptoms continue, consult a doctor. In case of respiratory failure or breathing irregularities, commence resuscitation or oxygen inhalation and immediately consult a doctor. In case of unconsciousness, place und transport the patient in a recovery position.
- **After skin contact**

Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, seek medical advice.
- **After eye contact**

Rinse immediately opened eye for several minutes under running water. Then consult doctor.

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- **After swallowing**
Induce vomiting, only if person affected is fully conscious.
Call a doctor immediately.
- **Information for doctor**
A good diuresis to maintain; check of the kidney function, electrolyte household. Early administration of ethanol can counteract the toxic effects of ethylene glycol (metabolic acidosis and kidney damages). Supporting measures required. Treatment is subject to both the judgement of the doctor and the patient's condition.
- **Most important symptoms and effects, both acute and delayed**
Irritant effect to skin, eyes and respiratory organs; headaches; nausea; dizziness feeling; imbalances; anesthesia; unconsciousness.

5. Fire fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **Special hazards arising from the substance or mixture**
Can be released in case of fire:
carbon monoxide (CO)
- **Advice for fire-fighters**
- **Protective equipment:**
Wear self-contained breathing apparatus.
See section 8.
- **Additional information**
Endangered containers in the surrounding area should be cooled with a water-hose.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6. Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Prevent contamination of soil and water. Prevent further leakage or spillage and prevent from entering drains. If large amounts are released the authorities must be informed.
Dilute with much water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.

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7. Handling and storage

- **Handling**
- **Precautions for safe handling**
The usual good standards of industrial hygiene should be maintained.
- **Information about protection against explosions and fires:**
No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage** Keep containers tightly closed. Store in cool, dry conditions.
- **Requirements to be met by storerooms and containers:**
Observe official regulations on storage and handling of water hazardous substances
Keep container tightly closed in a cool place
A good ventilation/suction on the workplace or storage area to be ensured
Not to be kept in containers made of aluminium, zinc, tin or alloys of those metals.
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.
- **Further information about storage conditions:** None.

8. Exposure controls/personal protection

- **Additional information about design of technical systems:**
No further data; see item 7.
- **Control parameters**
- **Components with critical values that require monitoring at the workplace:**
107-21-1 ethane-1,2-diol (25-50%)
WEL: Short-term value: 104** mg/m³, 40** ppm
Long-term value: 10* 52** mg/m³, 20** ppm
Sk *particulate **vapour
1330-43-4 boric acid, disodium salt (< 2.5%)
WEL: Long-term value: 1 mg/m³
- **Additional information:**
The lists that were valid during the compilation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from food, beverages and fodder.
Do not eat or drink while working.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Gases, fumes and aerosols should not be inhaled.
- **Breathing equipment:**
Use breathing protection only when aerosol or mist is formed.
Respiratory protection mask is not required if appropriately used according to specifications.
- **Recommended filter device for short term use:** Combination filter A-P2
- **Protection of hands:** Protective gloves.
- **Material of gloves**
Butyl rubber, BR
Nitrile rubber, NBR
Chloroprene rubber, CR

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The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**
Material of gloves is recommended for a short-term single use to protect from splashes. For permanent usage contact manufacturer of gloves.
- **Eye protection:** Safety glasses recommended during refilling.
- **Body protection:**
Standard protective clothing. Chemical resistant safety-shoes or boots. If skin contact is possible, wear impenetrable protective clothing against this solvent.

9. Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
 - Form:** Fluid
 - Colour:** Light yellow
- **Smell:** Recognizable
- **Change in condition**
 - Melting point/Melting range:** Not determined
 - Boiling point/Boiling range:** 100 ° C
- **Flash point:** > 100 ° C
- **Ignition temperature:** 410 ° C
(lowest level for individual components)
- **Self-inflammability:** Product is not selfigniting.
- **Danger of explosion:** Product is not approx. potentially explosive.
- **Critical values for explosion:**
 - Lower:** 3.0 Vol %
 - Upper:** 53.0 Vol %
(Higher and lower level for individual components)
- **Density at 20°C:** 1.04-1.05 g/cm³
- **Solubility in / Miscibility with Water:** Fully miscible

10. Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
To avoid thermal decomposition do not overheat.
- **Possibility of hazardous reactions** Reacts with strong oxidizing agents
- **Incompatible materials:**
Strong oxidizing agents
Aluminium, zinc, tin and other compositions of the metals
- **Hazardous decomposition products:**
No dangerous decomposition products known

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11. Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**
107-21-1 ethane-1,2-diol
Oral: LD50: 5840 mg/kg (rat)
Dermal: LD50: 9530 mg/kg (rbt)
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Slight irritant
- **Sensitization:** No sensitizing effect known.
- **Other information (about experimental toxicology):**
Ethanediol: The animal experiment (long-time tests) revealed liver and kidney damage as well as deposits of calcium salts in several tissues.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
Harmful

12. Ecological information

- **Toxicity**
- **Aquatic toxicity:**
107-21-1 ethane-1,2-diol
LC 50: > 10000 mg/l (Leuciscus idus)
LC 50: 18000 mg/l (Oncorhynchus mykiss)
LC 50: > 10000 mg/l (Daphnia magna)
- **Persistence and degradability**
Biodegradability method: Zahn-Wellens-test: 90%
Inhibitor concentration (IC50) as per OECD "activated sludge respiratory inhibitor test" (guideline 209) is > 1000 mg/l
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No bioaccumulation
- **Ecotoxicological effects:**
- **Remark:** On proper use no troubles in clarification plants
- **Additional ecological information:**
- **General notes:**
Do not allow to enter drainage system, surface or ground water.
Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **Results of PBT and vPvB assessment**
PBT: Not applicable.
vPvB: Not applicable.

13. Disposal considerations

- **Waste treatment methods**
The following advice is related to new material and not to any processed products. In case of a mixture with other products other disposal methods may become necessary. If in doubt seek advice from product supplier or from local authorities.
- **Recommendation**
After prior treatment product has to be disposed of in an incinerator for hazardous waste under adherence to the regulations pertaining to the disposal of particularly hazardous waste.

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Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Waste disposal key number:**
Since 01/01/99 the waste code numbers have not only been product-related but are also essentially application-related. The valid waste code number of the application can be obtained from the European waste catalogue.
- **Uncleaned packagings:**
Disposal must be made according to official regulations.
- **Recommendation:**
Rented packaging: After optimal emptying, close immediately and return to the supplier without cleaning. Care should be taken that no other materials get into the packaging.
Other containers: After complete emptying and cleaning, send to be reconditioned or recycled.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14. Transport information

- **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**
- **ADR/RID-GGVS/E Class:** -
- **Remarks:** Not dangerous for conveyance under UN, IMO, ADR/RID and IATA/ICAO codes

- **Maritime transport IMDG/GGVSea:**
- **IMDG/GGVSea Class:** -
- **Marine pollutant:** No
- **Remarks:** Not classified as hazardous for transport(ADR, RID, UN, IATA/ICAO,IMO)

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **Remarks:** Not classified as hazardous for transport (UN, IMO, ADR/RID and IATA/ICAO codes)
- **UN "Model Regulation":** -

- **Special precautions for user** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.

15. Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Information about limitation of use:**
Employment restrictions concerning young persons must be observed.
- **Technical instructions (air):**
Class Share in %
NK 25-50
- **Water hazard class:**
Water hazard class 1 (self assessment according to German VwVwS (Regulations for water-hazardous substances): slightly hazardous for water.

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- **Chemical safety assessment:**
A Chemical Safety Assessment has not been carried out.

16. Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Application:**
Directions for use: please refer to the Technical Information Sheet
- **Relevant phrases**
Complete wording of hazard statements and risk phrases (H- and R- phrases) mentioned in section 3. These phrases refer to the constituents. The labelling for this product is stated in section 2.
H272 May intensify fire; oxidiser.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
R22 Harmful if swallowed.
R25 Toxic if swallowed.
R50 Very toxic to aquatic organisms.
R8 Contact with combustible material may cause fire.
- **Department issuing data specification sheet:** see item 1: Informing department
- **Contact:**
Mr. U. Wigge
- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CLP: Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
SVHC: Substance of Very High Concern