Material Safety Data Sheet according to 2001/58/EC

febi-Antifreeze 19400/19402 (purple)

1. Substance / Supplier

1.1 Product details

Product Type: Antifreeze
Trade Name: febi Antifreeze 19400/19402 (purple)

1.2 Manufacturer / Supplier

Ferdinand Bilstein GmbH + Co. KG
Wilhelmstr. 46
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- **Informing departement:** Phone: 49 / 2333 / 911 - 0
- **Emergency information:** Phone: 49 / 2333 / 911 - 0

2. Compositon/Information on ingredients

Hazardous ingredients (in acc. to Dangerous Preparation Directive 1999/45/EC)

Components	Percentage (by wt.)	Symbol	Risk Phrase (s)	CAS No.
Ethyleneglycol (=1,2-Ethanediol)	>93	Xn	22	107-21-1
Na-2-EH-hexanoate	< 7	Xn	63	19766-89-3
Methyl-1H-BTZ	<2	Xn	20/22	29385-43-1

The coolant contains very small amounts of a bitter component (Bitrex 25%-solution by wt).

Non-hazardous ingredients

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3. Hazard identification

Principal hazards: If the product comes in contact with skin, eyes flush immediately with plenty of water. In case of swallowing please contact the physician.

Hazard designation:
Xn Harmful
R22 Harmful if swallowed
R63 Possibly harmful for the child (fetus) in mothers body
Information pertaining to particular dangers for man and environment:
This product is water polluting; see item 12.

Acute symptoms in case of over-exposure

- Respiration: Product vapours or fogs in higher than admitted concentrations may lead to irritations in nose and throat and may initiate headaches, nausea and sleeplessness.

- Skin: Short contacts with this product may rise a slight skin irritation. A prolonged contact (wetted clothes e.g.) may lead to a serious skin irritation that appears as redness and swelling.

- Eyes: May lead to irritations like slight uneasiness and redness of the eyes.

- Swallowing / Ingestion: R 22 Harmful if swallowed. Ethyleneglycol is toxic if swallowed. The lethal dosage for adults is 1-2 ml/kg or 100 ml. Ethyleneglycol is oxidised to oxalic acid in the body and therefore may lead to kidney damages (immediate ones or delayed ones). Furthermore a disturbance of the cerebral nervous system may occur. The symptoms express as dizziness, sleeplessness, vomiting, loss of the co-ordination, excitement, confusion, sickness (nausea), accelerated pulse and unconsciousness. During swallowing or vomiting afterwards product may be aspirated which may lead to damages of the lungs.

Chronical symptoms in case of exposure

Repeated ingestion may lead to kidney damages. On account of the irritating product characteristics a repeated skin contact may deteriorate the skin surface and / or deteriorate the condition of an existing skin dermatitis.

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. The classification results from the Conventional Method of 88/379 EEC concerning specific data of compounds.

Additional information

This product is applied only as solution or emulsion in water.

4. First aid measures

Ingestion:	DO NOT INDUCE VOMITING. Get immediate medical attention and seek for medical advise. If the patient is conscious, give 2 big glasses of water. In case of contamination of the product with the mouth rinse the mouth with plenty of water thoroughly. See also Pos. 3... ingestion.
Eyes:	Flush immediately with water for at least 15 minutes. Get immediate medical attention.
Skin:	Wash with soap and warm water. Remove contaminated clothing. Get medical attention of irritation develops. Launder contaminated clothing before reuse. If skin irritation occur and remains then consult the physician.
Inhalation:	If headaches remove exposed person to fresh air if adverse effects are observed. If the symptoms are on-going consult the physician.

Additional information

Note to physician: Treat symptomatically.
All symptoms mentioned under Pos. 3. as well as diarrhoea, thirst and spasms may be indications for later poisoning. An immediate medical treatment (via Dialysis of the blood e.g.) may reduce the toxic effects. Intravenous ethanol in Sodium-hydro-carbonate solution is a possible Anti-poison. For special medical advises please ask the particular hospital departments.

5. Fire fighting measures

Suitable extinguishing media:	CO_2, dry chemical, alcohol-resistant foam or water mist or water jets. Do not use full water jets because of safety reasons. Water can be used to cool and protect exposed material.
Fire-fighting procedures:	Recommend wearing self-contained breathing apparatus. Water may cause splattering. Do not inhale explosion – or burned gases and wear a self -breathing apparatus.
Unusual fire & explosion hazards:	Toxic fumes, gases or vapours may evolve on burning; thus CO, Carbon and other organic compounds like NOx may occur when the product burns.
Additional advises:	Dispose of fire debris and contaminate fire fighting water in acc. to official regulations.

6. Accidental release measures

Spill procedures: Personal Protective Equipment must be worn, see Personal Protection recommendations. Particular danger of slipping on leaked / spilled product. Ventilate area if spilled in confined space or other poorly ventilated areas.
Do not allow to enter, surface or ground water. Prevent entry into drainage system, sewers and water-ways. Pick up free liquid for recycle/ disposal. Residual liquid can be absorbed on inert material. Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Check under Transportation and Labelling and other Regulatory Information Section for hazardous Substances to determine regulatory reporting requirement for spills.

7. Handling and storage

Storage procedures: No special storage precautions required. Indoor-storage or under roof is recommended. Do not store the product with food or cereales.
VbF (regulation of flammable liquids): void.

Maximum storage temperature: Max. 40°C are recommended. Prevent from heat.

Handling procedures: Safety glasses and gloves are recommended. Avoid contact with skin or eyes. Local regulations concerning handling and storage of water-polluting products have to be followed.

Temperature handling procedure: Keep containers closed when not in use. Wash thoroughly after handling. Empty container contains product residue which may exhibit hazards of product. Store in cool, dry place in tightly closed containers. Do not eat, drink or smoke when working with the product. Take usual precautions when handling mineral oil products or chemical products.

Maximum handling: Max. 40°C are recommended.

8. Exposure controls and personal protection

Exposure limits **See Pos. 7.**

Other exposure limits:	> 93% Ethyleneglycol:	OEL (10 mg/m³)
	Acc. to Guideline 80/1107/EC:	TWA 20 ppm (52 mg/m³)
		STEL 40 ppm (104 mg/m³)
	Acc. to TRGS 900:	MAK 10 ppm (26 mg/m³)

Additional information
The lists that were valid during the compilation were used as basis. There is no reason to fear a risk of damage to the developing embryo or fetus when the OEL value is adhered to. Skin resorption hazard: Wear suitable gloves; Ethyleneglycol may penetrate skin.

General personally protection
- The usual precautionary measures should be adhered to in handling the chemicals and the mineral oil products.
- Keep away from foodstuffs, beverages and food.
- Wash hands during breaks and at the end of the work.
- Avoid close or long term contact with the skin.
- Use skin protection cream for preventive skin protection.
- Do not carry cleaning cloths impregnated with the product in trouser pockets.

Ventilation lrocedures: Use local exhaust ventilation to control mists or vapours.

Hand lrotection: Nitrile rubber or PVC gloves.

Eye protection:	Chemical goggles or faceshield.
Respiratory protection:	Use full face respirator with a combination organic vapour and dust/ mist cartridge if the recommended exposure limit is exceeded.
Clothing recommendation:	Long sleeve shirt is recommended.

9. Physical and chemical properties

Appearance:	Coloured liquid (typically purple)
Smell:	Characteristical
Pour point :	Not determined.
Flash point:	>100°C (PM)
Boiling point:	Not determined.
Upper flammable limit:	Not determined.
Lower flammable limit:	Not determined.
Ignition point:	> 400°C
Autoignition point:	Not determined.
Explosion data:	Material does not have explosive properties.
Vapour pressure:	at 20°C 2 mbar
pH:	Approx. 8.4
Specific gravity:	1.12 g/cm² (at 20°C) typically
Water solubility:	Fully soluble.
Evaporation rate:	Not determined.
Viscosity:	< 15 mm²/s (at 20°C), typically
Odour threshold	Unknown.

10. Stability and reactivity

Stability

In general the material is stable at moderately elevated temperatures and pressures. Under ambient temperatures and conditions the product is stable and dangerous reactions are hardly possible.

Decomposition temperature:	No decomposition if used acc. to specifications. In general at higher temperatures than 200°C.
Incompatibility:	Oxidizing agents. Chemical reactions with alkalines and acids.
Thermal decomposition products:	Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion.

11. Toxicological information

Acute exposure

LD/LC50 values, relevant for the classification: Ethyleneglycol

Eye irritation:	Prolonged contact may lead to eye irritating, but the product is not a primary eye irritant.
Skin irritation: Rabbits:	Prolonged or repeated skin contact as from clothing wet with material may cause skin irritations and or allergic skin reactions like redness, oedema, drying, and cracking of the skin. estimated to be slightly irritating
Respiratory irritation:	If material is misted or if vapours are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract based on data from components or similar materials. Under good industrial hygiene practises where all exposure limits are observed, respiratory irritation should not be problem.
Dermal toxicity:	Ethyleneglycol: LD50 dermal (in mammals): >2000 mg/ kg.
Inhalation toxicity:	No data available.
Oral:	Ethyleneglycol: LD50 (in mammals): 50-400 mg/ kg.
Dermal sensitization:	No data available to indicate product or components may be a primary skin sensitizer. But prolonged contact should be avoided.
Inhalation sensitization:	No data available to indicate product or components may be respiratory sensitizers.
Other information:	Experiences in humans: Ethanediol: 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. Skin resorption hazard. Some studies in mice and rats have shown a harmful effect on the foetus after oral ingestion of high doses. These effects did not occur in a study on rabbits. The whole of the information available provides no indication of a carcinogenic effect.

Chronical exposure

Chronic toxicity:	No data available.
Carcinogenicity:	The product is not labeled versus these effects.
Mutagenicity:	No data available.
Reproductive toxicity:	No data available.
Teratogenicity:	No data available.
Other information	See also: Acute Exposure ...other information.

12. Ecological information

Environmental toxicity

Freshwater fish toxicity:	Not determined.
Freshwater invertebrates toxicity:	Not determined.
Aquatic fish toxicity:	LC50 >100 mg/l (96h) acc. to OECD 203
Algae toxicity:	Not determined.
Saltwater fish toxicity:	Not determined.
Saltwater invertebrates: Toxicity:	Not determined.
Bacteria toxicity:	Not determined.
Miscellancous toxicity:	Not determined.

Environmental fate

Biodegradation:	Evaluation: Probably good biodegradable. Ethyleneglycol itself has a good biodegradability.
Ecotoxical effects:	Behaviour in sewage processing plants: Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations
Bioaccumulation:	Not determined.
Soil mobility:	Not determined.
WPC (german WGK):	Estimated: 1 acc. to german regulations – slightly hazardous to environment
AOX-hints:	The product is chlorine-free.
Heavy metals:	The product does not contain any heavy metals.
Other information:	Do not allow to reach ground water, water bodies or sewage systems.

13. Disposal consideration

Waste disposal

- In accordance with European Law: No dangerous disposal.
- Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- When storing used mineral oik products, ensure that the categories for waste oil only to offically authorized collectors.

European waste catalogue

- 14 00 00: wastes from organic substances employed as solvents (except 07 00 00 and 08 00 00).
- 14 04 00: wastes from coolants, foam / aerosol propellents
- 14 04 03: other solvents and solvent mixes

Uncleaned packagings

Recommendation:	Empty contaminated packagings thoroughly and can be recycled after thorough and proper cleaning. Small one-way packagings have to be disposed according to the local regulations: EWC 15 01 99.
Recommended cleaning agent:	Water, if necessary with cleaning agent.

14. Transport information

ICAO/ IATA:	Not regulated.
IMDG (Ambient):	Not regulated.
IMDG (Elevated):	Not regulated.
IMDG EMS:	Not applicable.
IMDG MFAG:	Not applicable.
IMO Marine Bulk:	Not applicable.
ADR/ RID (Ambient):	Not regulated.

Other information

No dangerous good acc. to dangerous goods/ transport directions.

15. Regulatory information

Symbol(s):	Xn	harmful
Indication of danger / R-phrase:	R22	harmful if swallowed
	R63	possibly harmul for the child (fetus) in mothers body
Precautionary labels:	S37/ S39	Wear suitable gloves & goggles.
	S26	Flush with plenty of water, immediately after contamination.
	S24/26	Avoid contact with skin and eyes.
	S46	If swallowed, seek for medical advise immediately and show this container or label.
	S2	Keep away from children

16. Other information

No other info.