

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****antifreeze****Article number: 22270, 22268, 05011, 01089, 31276, 77089, 80933****1.2 Relevant identified uses of the substance or mixture and uses advised against****1.2.1 Relevant uses**

Anti-freezing agents

1.2.2 Uses advised against

For all uses not specified in SECTION 1.2.1

1.3 Details of the supplier of the safety data sheet**Company**

Ferdinand Bilstein GmbH + Co. KG
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Address enquiries to**Technical information**info@febi.com**Safety Data Sheet**info@febi.com**1.4 Emergency telephone number****Advisory body**

+49 (0)89-19240 (24h) (English)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture [REGULATION (GB) CLP]**

Acute Tox. 4: H302 Harmful if swallowed.
 STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure.
 Eye Irrit. 2: H319 Causes serious eye irritation.
 Skin Irrit. 2: H315 Causes skin irritation.

2.2 Label elements

The product is required to be labelled in accordance with regulation CLP.

Hazard pictograms**Signal word**

WARNING

Contains:

Ethylene glycol

Potassium 3,5,5-trimethylhexanoate

Hazard statements

H302 Harmful if swallowed.

H373 May cause damage to organs through prolonged or repeated exposure.

H319 Causes serious eye irritation.

H315 Causes skin irritation.

Precautionary statements

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P260 Do not breathe vapours.

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

P280 Wear protective gloves / eye protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

P314 Get medical advice / attention if you feel unwell.

P501 Dispose of contents / container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards

Environmental hazards	Does not contain any PBT or vPvB substances. Contains no ingredients with endocrine-disrupting properties.
Other hazards	Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

3.1 Substances not applicable

3.2 Mixtures The product is a mixture.

Range [%]	Substance
90 - 95	Ethylene glycol
	CAS: 107-21-1, EINECS/ELINCS: 203-473-3, EU-INDEX: 603-027-00-1, Reg-No.: 01-2119456816-28-XXXX
	GHS/CLP: Acute Tox. 4: H302 - STOT RE 2: H373
1 - <2,49	Potassium 3,5,5-trimethylhexanoate
	CAS: 93918-10-6, EINECS/ELINCS: 299-890-3, Reg-No.: 01-2120747787-36-XXXX
	GHS/CLP: Acute Tox. 4: H302 - Skin Corr. 1: H314 - Eye Dam. 1: H318
0,1 - <0,3	Methyl-1H-benzotriazole
	CAS: 29385-43-1, EINECS/ELINCS: 249-596-6, Reg-No.: 01-2119979081-35-XXXX
	GHS/CLP: Acute Tox. 4: H302 - Aquatic Chronic 2: H411 - Repr. 2: H361d

Comment on component parts	For full text of H-statements: see SECTION 16.
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SECTION 4: First aid measures

4.1 Description of first aid measures

General information	Take off contaminated clothing and wash before reuse.
Inhalation	Remove person to fresh air and keep comfortable for breathing. In the event of symptoms seek medical treatment.
Skin contact	In case of contact with skin wash off immediately with plenty of water. Consult a doctor if skin irritation persists.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Consult a doctor immediately. Rinse out mouth and give plenty of water to drink. Do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
If swallowed or in the event of vomiting, risk of product entering the lungs.
Forward this sheet to your doctor.
Monitor kidney function and hematology.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Product itself is non-combustible. Fire extinguishing method of surrounding areas must be considered.
Extinguishing media that must not be used	Full water jet.

5.2 Special hazards arising from the substance or mixture

Risk of formation of toxic pyrolysis products.
Carbon monoxide (CO)

5.3 Advice for firefighters

Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.

High risk of slipping due to leakage/spillage of product.

Use personal protective equipment (protective gloves, safety glasses, protective clothing).

6.2 Environmental precautions

Prevent spread over a wide area (e.g. by containment or oil barriers).

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Pick up with absorbent material (e.g. sand, sawdust, universal absorbent, diatomaceous earth).

Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide suitable vacuuming at the processing area.

Take off contaminated clothing and wash before reuse.

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

Use barrier skin cream.

Wash hands before breaks and after work.

Contaminated work clothing should not be allowed out of the workplace.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.

Prevent penetration into the ground.

Do not store together with oxidizing agents.

Do not store together with food and animal food/diet.

Keep container tightly closed.

Keep container in a well-ventilated place.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection**8.1 Control parameters****Ingredients with occupational exposure limits to be monitored (UK)**

Substance
Ethylene glycol
CAS: 107-21-1, EINECS/ELINCS: 203-473-3, EU-INDEX: 603-027-00-1, Reg-No.: 01-2119456816-28-XXXX
Long-term exposure: 20 ppm, 52 mg/m ³ , Vapour, particulate: 10 mg/m ³
Short-term exposure (15-minute): 40 ppm, 104 mg/m ³

Ingredients with occupational exposure limits to be monitored EU (2004/37/EG)

Substance / EC LIMIT VALUES
Ethylene glycol
CAS: 107-21-1, EINECS/ELINCS: 203-473-3, EU-INDEX: 603-027-00-1, Reg-No.: 01-2119456816-28-XXXX
Eight hours: 20 ppm, 52 mg/m ³ , H
Short-term (15-minute): 40 ppm, 104 mg/m ³

DNEL

Substance
Ethylene glycol, CAS: 107-21-1
Industrial, dermal, Long-term - systemic effects, 106 mg/m ³
Industrial, inhalative, Long-term - local effects, 35 mg/m ³
general population, inhalative, Long-term - local effects, 7 mg/m ³
general population, dermal, Long-term - systemic effects, 53 mg/m ³
Methyl-1H-benzotriazole, CAS: 29385-43-1
Industrial, inhalative, Long-term - systemic effects, 21.2 mg/m ³
Industrial, dermal, Long-term - systemic effects, 300 µg/kg bw/day
general population, inhalative, Long-term - systemic effects, 350 µg/m ³
general population, dermal, Long-term - systemic effects, 10 µg/kg bw/day
general population, oral, Long-term - systemic effects, 10 µg/kg bw/day

PNEC

Substance
Ethylene glycol, CAS: 107-21-1
sediment (seawater), 3,7 mg/kg
sewage treatment plants (STP), 199,5 mg/l (AF=10)
soil, 1,53 mg/kg
sediment (freshwater), 37 mg/kg
seawater, 1 mg/L
freshwater, 10 mg/L
Methyl-1H-benzotriazole, CAS: 29385-43-1
freshwater, 8 µg/L
seawater, 20 µg/L
sewage treatment plants (STP), 39.4 mg/L
sediment (freshwater), 117 µg/kg sediment dw
sediment (seawater), 292 µg/kg sediment dw
soil, 18.7 µg/kg soil dw

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
Eye protection	Safety glasses. (EN 166:2001)
Hand protection	The details concerned are recommendations. Please contact the glove supplier for further information. > 0,4 mm Nitrile rubber, >480 min (EN 374-1/-2/-3).
Skin protection	Protective clothing (EN 340)
Other	Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier. Avoid contact with eyes and skin. Do not inhale vapours.
Respiratory protection	In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection. Short term: filter apparatus, combination filter A-P2. (DIN EN 14387)
Thermal hazards	none
Delimitation and monitoring of the environmental exposition	Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Form	liquid
Color	blue
Odor	characteristic
Odour threshold	No information available.
pH-value	7,5 - 8,5 (50%)
pH-value [1%]	No information available.
Boiling point or initial boiling point and boiling range [°C]	No information available.
Flash point [°C]	>100 (DIN 51758)
Flammability	yes
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	<0,01 (20°C)
Density [g/cm³]	ca. 1,12 (DIN 51757) (20 °C / 68,0 °F)
Relative density	not determined
Bulk density [kg/m³]	not applicable
Solubility in water	miscible
Solubility other solvents	No information available.
Partition coefficient n-octanol/water (log value)	No information available.
Kinematic viscosity	No information available.
Relative vapour density	No information available.
Melting point [°C]	No information available.
Auto-ignition temperature [°C]	No information available.
Decomposition temperature [°C]	No information available.
Particle characteristics	No information available.

9.2 Other information

Pour point: ca. -38 (50 Vol-% in H₂O)

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

No hazardous reactions known.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity

Based on the available information, the classification criteria are fulfilled.

Product
ATE-mix, oral, 529,0 mg/kg bw
Substance
Ethylene glycol, CAS: 107-21-1
LD50, oral, Rat, 7712 mg/kg bw
ATE, oral, 500 mg/kg (Acute Tox. 4)
Methyl-1H-benzotriazole, CAS: 29385-43-1
LD50, oral, Rat, 720 mg/kg
NOAEL, oral, Rat, 150 mg/kg bw/day
Potassium 3,5,5-trimethylhexanoate, CAS: 93918-10-6
LD50, oral, Rat, 1160 mg/kg bw, OECD 401

Acute dermal toxicity

Based on the available information, the classification criteria are not fulfilled.

Product
ATE-mix, dermal, >2000 mg/kg bw
Substance
Ethylene glycol, CAS: 107-21-1
LD50, dermal, mouse, > 3500 mg/kg bw
Methyl-1H-benzotriazole, CAS: 29385-43-1
LD50, dermal, Rabbit, 2000 mg/kg bw

Acute inhalational toxicity

Based on the available information, the classification criteria are not fulfilled.

Product
ATE-mix, inhalation (vapour), >20 mg/L
ATE-mix, inhalativ (mist), >5 mg/L
ATE-mix, inhalativ (dust), >5 mg/L
Substance
Ethylene glycol, CAS: 107-21-1
LC50, inhalative, Rat, > 2,5 mg/L air, 6h

Serious eye damage/irritation

Irritant

Substance
Ethylene glycol, CAS: 107-21-1
Eye, Rabbit, In vivo study, non-irritating
Potassium 3,5,5-trimethylhexanoate, CAS: 93918-10-6
OECD 437, Causes serious eye damage.

Skin corrosion/irritation

Irritant

Substance
Ethylene glycol, CAS: 107-21-1
dermal, Rabbit, In vivo study, non-irritating
Potassium 3,5,5-trimethylhexanoate, CAS: 93918-10-6
OECD 431, corrosive

Respiratory or skin sensitisation

Based on the available information, the classification criteria are not fulfilled.

Substance
Ethylene glycol, CAS: 107-21-1



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dermal, Guinea pig, In vivo study, non-sensitizing

Specific target organ toxicity — single exposure Based on the available information, the classification criteria are not fulfilled.
Specific target organ toxicity — repeated exposure May cause damage to organs through prolonged or repeated exposure.

Substance
Ethylene glycol, CAS: 107-21-1
NOAEL, dermal, Dog, 2200 mg/kg bw/day, adverse effect observed
NOEL, oral, Rat, 150 mg/kg bw/day, OECD 408, adverse effect observed

Mutagenicity Based on the available information, the classification criteria are not fulfilled.

Substance
Ethylene glycol, CAS: 107-21-1
in vitro, OECD 471, no adverse effect observed

Reproduction toxicity Based on the available information, the classification criteria are not fulfilled.
This product contains one or more substances of categorie Repr. 2 (CLP).
(CAS: 29385-43-1)

- Fertility

Substance
Ethylene glycol, CAS: 107-21-1
NOAEL, oral, Rat, > 1000 mg/kg bw/day, no adverse effect observed

- Development

Substance
Ethylene glycol, CAS: 107-21-1
NOAEL, oral, Rat, 500 mg/kg bw/day, no adverse effect observed

Carcinogenicity Based on the available information, the classification criteria are not fulfilled.

Substance
Ethylene glycol, CAS: 107-21-1
NOAEL, oral, Rat, 1000 mg/kg bw/day, In vivo study, no adverse effect observed

Aspiration hazard Based on the available information, the classification criteria are not fulfilled.
General remarks

Toxicological data of complete product are not available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties Contains no ingredients with endocrine-disrupting properties.
11.2.2 Other information none

SECTION 12: Ecological information

12.1 Toxicity

Ecological data of complete product are not available.

Substance
Ethylene glycol, CAS: 107-21-1
LC50, (3d), Fish, 72.86 g/L
LC50, (28d), Fish, 1,5 g/L
EC50, (48h), Invertebrates, 100 mg/L
EC50, (21d), Invertebrates, 33,911 g/L
EC50, (4d), Invertebrates, 3,536 - 13 g/L
Methyl-1H-benzotriazole, CAS: 29385-43-1
LC50, (96h), Fish, 55 - 180 mg/L
EC50, (48h), Invertebrates, 8.58 - 15.8 mg/L
EC50, (72h), Algae, 29 - 75 mg/L
NOEC, (21d), Invertebrates, 18.4 mg/L
Potassium 3,5,5-trimethylhexanoate, CAS: 93918-10-6
NOEC, (48h), Daphnia magna, >100 mg/L
NOEC, (72h), Algae, >100 mg/L

12.2 Persistence and degradability

Behaviour in environment compartments

Behaviour in sewage plant No information available.

Biological degradability No information available.

Substance
Ethylene glycol, CAS: 107-21-1
(10d), 90 - 100 %, OECD 301 A, The product is readily biodegradable.

12.3 Bioaccumulative potential

No information available.

Substance
Ethylene glycol, CAS: 107-21-1
BCF, 10
log Pow, -1,36
Potassium 3,5,5-trimethylhexanoate, CAS: 93918-10-6
log Kow, ≤ 4,5, Does not bioaccumulate.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

12.7 Other adverse effects

None known.



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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product	Dispose of as hazardous waste. Disposal in an incineration plant in accordance with the regulations of the local authorities.
Waste no. (recommended)	160114*
Contaminated packaging	Uncontaminated packaging may be taken for recycling. Packaging that cannot be cleaned should be disposed of as for product.
Waste no. (recommended)	150110* packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number or ID number

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.2 UN proper shipping name

Transport by land according to ADR/RID	NO DANGEROUS GOODS
Inland navigation (ADN)	NO DANGEROUS GOODS
Marine transport in accordance with IMDG	NOT CLASSIFIED AS "DANGEROUS GOODS"
Air transport in accordance with IATA	NOT CLASSIFIED AS "DANGEROUS GOODS"

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable



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14.4 Packing group

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID	no
Inland navigation (ADN)	no
Marine transport in accordance with IMDG	no
Air transport in accordance with IATA	no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EEC-REGULATIONS	2008/98/EG (2000/532/EC); 2010/75/EU; 2004/42/EG; (EG) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EWG ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 517/2014; (EU) 2019/1148; (EU) 2019/1021, (EU) 2023/707
- Comment on component parts	Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
- Annex XIV (REACH)	According to Annex XIV of Regulation (EC) 1907/2006 (REACH) the product does not contain any substances $\geq 0.1\%$ that are subject to authorisation.
- Annex XVII (REACH)	According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product contains $\geq 0.1\%$ of substances with the following restrictions. 75 According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product is subject to the following restrictions. 3
TRANSPORT-REGULATIONS	ADR (2025); IMDG-Code (2025, 42. Amdt.); IATA-DGR (2025)
NATIONAL REGULATIONS (UK):	EH40/2005 Workplace exposure limits (Second edition, published December 2011); UK REACH; GB CLP.
- Observe employment restrictions for people	Observe employment restrictions for young people.
- VOC (2010/75/CE)	not relevant

15.2 Chemical safety assessment

For this product a chemical safety assessment has not been carried out.

SECTION 16: Other information**16.1 Hazard statements (SECTION 3)**

H361d Suspected of damaging the unborn child.
 H411 Toxic to aquatic life with long lasting effects.
 H318 Causes serious eye damage.
 H314 Causes severe skin burns and eye damage.

H373 May cause damage to organs through prolonged or repeated exposure.
 H302 Harmful if swallowed.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
 RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
 ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
 ATE = acute toxicity estimate
 CAS = Chemical Abstracts Service
 CLP = Classification, Labelling and Packaging
 DMEL = Derived Minimum Effect Level
 DNEL = Derived No Effect Level
 EC50 = Median effective concentration
 ECB = European Chemicals Bureau
 EEC = European Economic Community
 EINECS = European Inventory of Existing Commercial Chemical Substances
 EL50 = Median effective loading
 ELINCS = European List of Notified Chemical Substances
 EmS = Emergency Schedules
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
 IC50 = Inhibition concentration, 50%
 IMDG = International Maritime Code for Dangerous Goods
 IUCLID = International Uniform Chemical Information Database
 IVIS = In vitro irritation score
 LC50 = Lethal concentration, 50%
 LD50 = Median lethal dose
 LC0 = lethal concentration, 0%
 LOAEL = lowest-observed-adverse-effect level
 LL50 = Median lethal loading
 LQ = Limited Quantities
 MARPOL = International Convention for the Prevention of Marine Pollution from Ships
 NOAEL = No Observed Adverse Effect Level
 NOEC = No Observed Effect Concentration
 PBT = Persistent, Bioaccumulative and Toxic substance
 PNEC = Predicted No-Effect Concentration
 REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
 STP = Sewage Treatment Plant
 TLV®/TWA = Threshold limit value – time-weighted average
 TLV®/STEL = Threshold limit value – short-time exposure limit
 VOC = Volatile Organic Compounds
 vPvB = very Persistent and very Bioaccumulative

16.3 Other information**Classification procedure**

Acute Tox. 4: H302 Harmful if swallowed. (Calculation method)
 STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure. (Calculation method)
 Eye Irrit. 2: H319 Causes serious eye irritation. (Calculation method)
 Skin Irrit. 2: H315 Causes skin irritation. (Calculation method)

Modified position

1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 8.1, 8.2, 9.1, 9.2, 11.1, 11.2, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 15.1, 16.2, 16.3

