Safety data sheet according to Regulation (EC) No 1907/2006, Annex II (last amended by Regulation (EU) 2020/878)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Kuehlerfrostschutz KFS P-OAT GE

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the substance or mixture:

Anti-freeze
Refrigerant

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

GB

LIQUI MOLY GmbH
Jerg-Wieland-Str. 4
89081 Ulm-Lehr
Tel.: (+49) 0731-1420-0
Fax: (+49) 0731-1420-88

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:

GB

Landspitali- The National University Hospital of Iceland, tel. +354 543 2222 or 112 (valid only for Iceland)

Telephone number of the company in case of emergencies:

+49 (0) 700 / 24 112 112 (LMR)
+1 872 5888271 (LMR)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
Acute Tox.	4	H302-Harmful if swallowed.
STOT RE	2	H373-May cause damage to organs through prolonged or repeated exposure (kidneys).

2.2 Label elements

Labeling according to Regulation (EC) 1272/2008 (CLP)



Warning

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

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 or spray. P264-Wash with plenty of water and soap thoroughly after handling. P270-Do not eat, drink or smoke when using this product.
P314-Get medical advice / attention if you feel unwell.
P501-Dispose of contents / container to an approved waste disposal facility.

Ethanediol

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

SECTION 3: Composition/information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

Ethanediol	**Substance for which an EU exposure limit value applies.**
Registration number (REACH)	01-2119456816-28-XXXX
Index	603-027-00-1
EINECS, ELINCS, NLP, REACH-IT List-No.	203-473-3
CAS	107-21-1
content %	80-98
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 STOT RE 2, H373 (kidneys)
Specific Concentration Limits and ATE	ATE (oral): 1600 mg/kg

Methyl-1H-benzotriazole	
Registration number (REACH)	01-2119979081-35-XXXX
Index	613-351-00-5
EINECS, ELINCS, NLP, REACH-IT List-No.	249-596-6
CAS	29385-43-1
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Repr. 2, H361d Aquatic Chronic 2, H411
Specific Concentration Limits and ATE	ATE (oral): 720 mg/kg

For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.
The substances named in this section are given with their actual, appropriate classification!

For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.
The addition of the highest concentrations listed here can result in a classification. Only when this classification is listed in Section 2 does it apply. In all other cases the total concentration is below the classification.

SECTION 4: First aid measures

4.1 Description of first aid measures
First-aiders should ensure they are protected!
Never pour anything into the mouth of an unconscious person!

Inhalation
Remove person from danger area.
Supply person with fresh air and consult doctor according to symptoms.

Skin contact
Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Eye contact
Remove contact lenses.
Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

Ingestion
Rinse the mouth thoroughly with water.
Give copious water to drink - consult doctor immediately.
In case of vomiting, keep head low so that the stomach content does not reach the lungs.

4.2 Most important symptoms and effects, both acute and delayed
If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.
In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.
eyes, reddened
watering eyes
reddening of the skin
drying of the skin.
irritation of the respiratory tract
coughing
nausea
vomiting
cramps
lower abdominal pain
liver and kidney damage
effects/damages the central nervous system
acidosis
oedema of the lungs
Danger of blindness.

4.3 Indication of any immediate medical attention and special treatment needed
Symptomatic treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Water jet spray / alcohol resistant foam / CO2 / dry extinguisher.

Unsuitable extinguishing media
High volume water jet

5.2 Special hazards arising from the substance or mixture
In case of fire the following can develop:
Aldehydes
Oxides of carbon
Oxides of nitrogen
Toxic gases

5.3 Advice for firefighters
For personal protective equipment see Section 8.

In case of fire and/or explosion do not breathe fumes.
Protective respirator with independent air supply.
According to size of fire
Full protection, if necessary.
Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.
Ensure sufficient ventilation, remove sources of ignition.
Avoid dust formation with solid or powder products.
Leave the danger zone if possible, use existing emergency plans if necessary.
Keep unprotected persons away.
Avoid contact with eyes or skin.
If applicable, caution - risk of slipping.

6.1.2 For emergency responders

See section 8 for suitable protective equipment and material specifications.

6.2 Environmental precautions

If leakage occurs, dam up.
Resolve leaks if this possible without risk.
Prevent from entering drainage system.
Prevent surface and ground-water infiltration, as well as ground penetration.
If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth) and dispose of according to Section 13.
Fill the absorbed material into lockable containers.

6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations

Ensure good ventilation.
Avoid breathing vapours or spray.
Avoid contact with eyes or skin.
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
Observe directions on label and instructions for use.
Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.
Store product closed and only in original packing.
Not to be stored in gangways or stair wells.
Store in a well ventilated place.
Store in a dry place.

7.3 Specific end use(s)

No information available at present.
Observe the instructions for good working practice and the recommendations for risk assessment.
Consult hazardous substance information systems, e.g. from the professional associations, the chemical industry or different industries, depending on the application (building materials, wood, chemistry, laboratory, leather, metal).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

GB **Chemical Name**	Ethanediol	
WEL-TWA: 10 mg/m3 (particulate), 52 mg/m3 (vapour) (WEL-TWA), 20 ppm (52 mg/m3) (EU)	WEL-STEL: 104 mg/m3 (vapour) (WEL-STEL), 40 ppm (104 mg/m3) (EU)	---
Monitoring procedures:	- Draeger - Ethylene Glycol 10 (5) (81 01 351) - Compur - KITA-232 SA (502 342) - Compur - KITA-232 SB (550 267) - NIOSH 5500 (ETHYLENE GLYCOL) - 1993 - NIOSH 5523 (GLYCOLS) - 1996 OSHA PV2024 (Ethylene glycol) - 1999 - EU project BC/CEN/ENTR/000/2002-16 card - 11-2 (2004) - Draeger - Alcohol 100/a (CH 29 701)	
BMGV: ---		Other information: Sk (particulate, vapour)

Ethanediol						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - soil		PNEC	1,53	mg/kg	
	Environment - sewage treatment plant		PNEC	199,5	mg/l	
	Environment - marine		PNEC	1	mg/l	
	Environment - sediment, marine		PNEC	3,7	mg/kg	
	Environment - sediment, freshwater		PNEC	20,9	mg/kg	
	Environment - freshwater		PNEC	10	mg/l	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	7	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	53	mg/kg bw/day	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	35	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	106	mg/kg bw/day	

Methyl-1H-benzotriazole						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	0,008	mg/l	
	Environment - marine		PNEC	20	µg/l	
	Environment - sediment, freshwater		PNEC	0,117	mg/kg dw	
	Environment - sediment, marine		PNEC	0,292	mg/kg dw	
	Environment - soil		PNEC	0,0187	mg/kg dw	
	Environment - sewage treatment plant		PNEC	39,4	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	0,086	mg/l	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,01	mg/kg bw/day	
Consumer	Human - dermal	Long term, systemic effects	DNEL	0,01	mg/kg bw/day	

Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,35	mg/m3	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	21,2	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,3	mg/kg bw/day	

GB - United Kingdom | WEL-TWA = Workplace Exposure Limit - Long-term exposure limit - 8-hour TWA (= time weighted average) reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/CE, 2017/164/EU). (9) = Respirable fraction (2004/37/CE, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |
| WEL-STEL = Workplace Exposure Limit - Short-term exposure limit - 15-minute reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |
| BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |
| Other information (EH40/2005 Workplace exposure limits (Fourth Edition 2020)): Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (98/24/EC, 2004/37/CE), (14) = The substance can cause sensitisation of the skin (2004/37/CE), (15) = Substantial contribution to the total body burden via dermal exposure possible. |

8.2 Exposure controls
8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
Applies only if maximum permissible exposure values are listed here.
Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.
These are specified by e.g. EN 14042.
EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:
Chemical resistant protective gloves (EN ISO 374).
If applicable
Protective gloves in butyl rubber (EN ISO 374).
Protective Neoprene® / polychloroprene gloves (EN ISO 374).
Protective nitrile gloves (EN ISO 374).
Protective Viton® / fluoroelastomer gloves (EN ISO 374).
Minimum layer thickness in mm:
0,38
Permeation time (penetration time) in minutes:
480
The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.
The recommended maximum wearing time is 50% of breakthrough time.
Protective hand cream recommended.

Skin protection - Other:

Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:
If OES or MEL is exceeded.
Gas mask filter A (EN 14387), code colour brown
Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:
Not applicable

Additional information on hand protection - No tests have been performed.
In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
Selection of materials derived from glove manufacturer's indications.
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls
No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Yellow, Turbid
Odour:	Mild
Melting point/freezing point:	-36,5 °C
Boiling point or initial boiling point and boiling range:	>173-<185 °C
Flammability:	There is no information available on this parameter.
Lower explosion limit:	There is no information available on this parameter.
Upper explosion limit:	There is no information available on this parameter.
Flash point:	122 °C (Pensky-Martens, closed cup)
Auto-ignition temperature:	398 °C (Ethanediol)
Decomposition temperature:	There is no information available on this parameter.
pH:	8,3 (20°C)
Kinematic viscosity:	There is no information available on this parameter.
Solubility:	Mixable
Partition coefficient n-octanol/water (log value):	Does not apply to mixtures.
Vapour pressure:	There is no information available on this parameter.
Density and/or relative density:	1,119 kg/l (20°C)
Relative vapour density:	There is no information available on this parameter.
Particle characteristics:	Does not apply to liquids.

9.2 Other information
No information available at present.

SECTION 10: Stability and reactivity

10.1 Reactivity
The product has not been tested.

10.2 Chemical stability
Stable with proper storage and handling.

10.3 Possibility of hazardous reactions
No dangerous reactions are known.

10.4 Conditions to avoid
None known

10.5 Incompatible materials
Acids
Oxidizing agents
Nitrates

Peroxides
Chlorates

10.6 Hazardous decomposition products

No decomposition when used as directed.

SECTION 11: Toxicological information

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

Possibly more information on health effects, see Section 2.1 (classification).

Kuehlerfrostschutz KFS P-OAT GE						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	ATE	1723	mg/kg			calculated value
Acute toxicity, by dermal route:						n.d.a.
Acute toxicity, by inhalation:						n.d.a.
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Symptoms:						n.d.a.

Ethanediol						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	>2000	mg/kg	Rat	IUCLID Chem. Data Sheet (ESIS)	Does not conform with EU classification.
Acute toxicity, by oral route:	LD50	1600	mg/kg	Cat		
Acute toxicity, by oral route:	ATE	1600	mg/kg			
Acute toxicity, by dermal route:	LD50	9530	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LC50	>2,5	mg/l	Rat		
Skin corrosion/irritation:				Rabbit		Not irritant
Serious eye damage/irritation:				Rabbit		Slightly irritant
Respiratory or skin sensitisation:				Human being	(Patch-Test)	Negative
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Not sensitizising
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Carcinogenicity:						Negative
Reproductive toxicity:						Negative
Specific target organ toxicity - repeated exposure (STOT-RE):	NOAEL	>2200-<4400	mg/kg bw/d	Dog	OECD 410 (Repeated Dose Dermal Toxicity - 90-Day)	Target organ(s): kidneys, STOT RE 2
Aspiration hazard:						Negative
Symptoms:						ataxia, breathing difficulties, unconsciousness, cramps, fatigue

Methyl-1H-benzotriazole						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	720	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by oral route:	ATE	720	mg/kg			
Acute toxicity, by dermal route:	LD50	> 2000	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	Analogous conclusion

Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Not sensitizising
Germ cell mutagenicity:				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity (Developmental toxicity):				Rat	OECD 421 (Reproduction/Developmental Toxicity Screening Test)	Negative, Analogous conclusion
Reproductive toxicity (Developmental toxicity):	LOAEL	30	mg/kg bw/d	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Positiveoral
Reproductive toxicity (Effects on fertility):				Rat	OECD 421 (Reproduction/Developmental Toxicity Screening Test)	Negative, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), oral:	NOAEL	150	mg/kg	Rat	OECD 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)	

11.2. Information on other hazards

Kuehlerfrostschutz KFS P-OAT GE						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Endocrine disrupting properties:						Does not apply to mixtures.
Other information:						No other relevant information available on adverse effects on health.

SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

Kuehlerfrostschutz KFS P-OAT GE							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:							n.d.a.
12.1. Toxicity to daphnia:							n.d.a.
12.1. Toxicity to algae:							n.d.a.
12.2. Persistence and degradability:							n.d.a.
12.3. Bioaccumulative potential:							n.d.a.
12.4. Mobility in soil:							n.d.a.
12.5. Results of PBT and vPvB assessment							n.d.a.
12.6. Endocrine disrupting properties:							Does not apply to mixtures.
12.7. Other adverse effects:							No information available on other adverse effects on the environment.

Other information:							DOC-elimination degree(complexing organic substance)>= 80%/28d: No
Other information:	AOX		0	%			Does not contain any organically bound halogens which can contribute to the AOX value in waste water.

Ethanediol							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:	LC50	96h	>10000	mg/l	Pimephales promelas	IUCLID Chem. Data Sheet (ESIS)	
12.1. Toxicity to daphnia:	EC50	48h	41100	mg/l	Daphnia magna		
12.1. Toxicity to algae:	EC50	96h	6500-7500	mg/l	Pseudokirchneriella subcapitata		
12.3. Bioaccumulative potential:	Log Pow		-1,36				Not to be expected
Toxicity to bacteria:	EC50	16h	>10000	mg/l	Pseudomonas putida	IUCLID Chem. Data Sheet (ESIS)	
Other information:	BOD5		0,78	g/g			IUCLID
Other information:	COD		1,19	g/g			IUCLID
Other information:	ThOD		1,29	g/g			IUCLID

Methyl-1H-benzotriazole							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:	LC50	96h	180	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
12.1. Toxicity to daphnia:	EC50	48h	8,58	mg/l		OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to daphnia:	EC10	21d	0,4	mg/l		OECD 211 (Daphnia magna Reproduction Test)	Analogous conclusion
12.1. Toxicity to daphnia:	LC50	2d	55	mg/l	Acartia tonsa	ISO 14669	
12.1. Toxicity to daphnia:	EC10	21d	5,93	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	18,4	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	EC50	21d	> 37,6	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	NOEC/NOEL	72h	30	mg/l	Skeletonema costatum	ISO 10253	
12.1. Toxicity to algae:	IC50	72h	75	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
12.1. Toxicity to algae:	EC50	72h	53	mg/l	Skeletonema costatum	ISO 10253	

12.2. Persistence and degradability:		28d	4	%	activated sludge	Regulation (EC) 440/2008 C.4-D (DETERMINATION OF 'READY' BIODEGRAD. - MANOMETRIC RESPIROMETRY TEST)	Not readily biodegradable
12.3. Bioaccumulative potential:	Log Kow		1,079-1,083			OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method)	Low
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC50	24h	1060	mg/l	activated sludge	ISO 8192	Analogous conclusion

SECTION 13: Disposal considerations

13.1 Waste treatment methods
For the substance / mixture / residual amounts
EC disposal code no.:
The waste codes are recommendations based on the scheduled use of this product.
Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)
16 01 14 antifreeze fluids containing hazardous substances
Recommendation:
Sewage disposal shall be discouraged.
Pay attention to local and national official regulations.
E.g. suitable incineration plant.
E.g. dispose at suitable refuse site.
For contaminated packing material
Pay attention to local and national official regulations.
Empty container completely.
Uncontaminated packaging can be recycled.
Dispose of packaging that cannot be cleaned in the same manner as the substance.

SECTION 14: Transport information

General statements
Transport by road/by rail (ADR/RID)
14.1. UN number or ID number: Not applicable
14.2. UN proper shipping name:
Not applicable
14.3. Transport hazard class(es): Not applicable
14.4. Packing group: Not applicable
Factor:
14.5. Environmental hazards: Not applicable
Tunnel restriction code: Not applicable
Classification code: Not applicable
LQ: Not applicable
Transport category: Not applicable
Transport by sea (IMDG-code)
14.1. UN number or ID number: Not applicable
14.2. UN proper shipping name:
Not applicable
14.3. Transport hazard class(es): Not applicable
14.4. Packing group: Not applicable

14.5. Environmental hazards:	Not applicable
Marine Pollutant:	Not applicable
EmS:	Not applicable

Transport by air (IATA)

14.1. UN number or ID number:	Not applicable
14.2. UN proper shipping name:	
Not applicable	
14.3. Transport hazard class(es):	Not applicable
14.4. Packing group:	Not applicable
14.5. Environmental hazards:	Not applicable

14.6. Special precautions for user
Unless specified otherwise, general measures for safe transport must be followed.

14.7. Maritime transport in bulk according to IMO instruments
Non-dangerous material according to Transport Regulations.

SECTION 15: Regulatory information

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

Observe restrictions:
Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC)!
Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!
Comply with trade association/occupational health regulations.

Directive 2010/75/EU (VOC): < 3 %

National requirements/regulations on safety and health protection must be applied when using work equipment.

15.2 Chemical safety assessment
A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: n.a.
These details refer to the product as it is delivered.
Employee instruction/training in handling hazardous materials is required.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Acute Tox. 4, H302	Classification based on toxicological analyses.
STOT RE 2, H373	Classification according to calculation procedure.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents.
H361d Suspected of damaging the unborn child.
H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Acute Tox. — Acute toxicity - oral
STOT RE — Specific target organ toxicity - repeated exposure
Repr. — Reproductive toxicity
Aquatic Chronic — Hazardous to the aquatic environment - chronic

Key literature references and sources for data:
Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.
Guidelines for the preparation of safety data sheets as amended (ECHA).

Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).
Safety data sheets for the constituent substances.
ECHA Homepage - Information about chemicals.
GESTIS Substance Database (Germany).
German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).
EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.
National Lists of Occupational Exposure Limits for each country as amended.
Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

Any abbreviations and acronyms used in this document:

acc., acc. to according, according to
ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOX Adsorbable organic halogen compounds
approx. approximately
Art., Art. no. Article number
ASTM ASTM International (American Society for Testing and Materials)
ATE Acute Toxicity Estimate
BAM Bundesanstalt für Materialforschung und -prüfung (= Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF Bioconcentration factor
BSEF The International Bromine Council
CAS Chemical Abstracts Service
CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR carcinogenic, mutagenic, reproductive toxic
DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon
e.g. for example (abbreviation of Latin 'exempli gratia'), for instance
EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)
EC European Community
ECHA European Chemicals Agency
ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect
EEC European Economic Community
EINECS European Inventory of Existing Commercial Chemical Substances
ELINCS European List of Notified Chemical Substances
EN European Norms
EPA United States Environmental Protection Agency (United States of America)
ErCx, EμCx, ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)
etc. et cetera
EU European Union
EVAL Ethylene-vinyl alcohol copolymer
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
Koc Adsorption coefficient of organic carbon in the soil
Kow octanol-water partition coefficient
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC (Code) International Bulk Chemical (Code)
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
LC50 Lethal Concentration to 50 % of a test population
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
Log Koc Logarithm of adsorption coefficient of organic carbon in the soil
Log Kow, Log Pow Logarithm of octanol-water partition coefficient
LQ Limited Quantities

MARPOL International Convention for the Prevention of Marine Pollution from Ships
mg/kg bw mg/kg body weight
mg/kg bw/d, mg/kg bw/day mg/kg body weight/day
mg/kg dw mg/kg dry weight
mg/kg wwt mg/kg wet weight
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute for Occupational Safety and Health (USA)
NLP No-longer-Polymer
NOEC, NOEL No Observed Effect Concentration/Level
OECD Organisation for Economic Co-operation and Development
org. organic
OSHA Occupational Safety and Health Administration (USA)
PBT persistent, bioaccumulative and toxic
PE Polyethylene
PNEC Predicted No Effect Concentration
ppm parts per million
PVC Polyvinylchloride
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 6/7/8/9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SVHC Substances of Very High Concern
Tel. Telephone
TOC Total organic carbon
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.
No responsibility.
These statements were made by:

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