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Revision date / version: 01.11.2021 / 0008
Replacing version dated / version: 09.04.2020 / 0007
Valid from: 01.11.2021
PDF print date: 01.11.2021
Klimaanlagenreiniger 2K

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

1.1 Product identifier

Klimaanlagenreiniger 2K

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

Relevant identified uses of the substance or mixture:

Air conditioning cleaner

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

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:

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
Skin Sens.	1	H317-May cause an allergic skin reaction.

2.2 Label elements

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



Warning

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H317-May cause an allergic skin reaction.

P101-If medical advice is needed, have product container or label at hand. P102-Keep out of reach of children.
 P261-Avoid breathing vapours or spray. P280-Wear protective gloves.
 P333+P313-If skin irritation or rash occurs: Get medical advice / attention.
 P501-Dispose of contents / container to an approved waste disposal facility.

2-methylisothiazol-3(2H)-one

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

Diethanolamine	
Registration number (REACH)	01-2119488930-28-XXXX
Index	603-071-00-1
EINECS, ELINCS, NLP, REACH-IT List-No.	203-868-0
CAS	111-42-2
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Repr. 2, H361fd STOT RE 2, H373 (central nervous system, kidneys, liver, blood) (oral)

2-methylisothiazol-3(2H)-one	
Registration number (REACH)	---
Index	613-326-00-9
EINECS, ELINCS, NLP, REACH-IT List-No.	220-239-6
CAS	2682-20-4
content %	0,0015-<0,01
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	EUH071 Acute Tox. 2, H330 Acute Tox. 3, H301 Acute Tox. 3, H311 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=1)
Specific Concentration Limits and ATE	Skin Sens. 1A, H317: 0,0015 %

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.

SECTION 4: First aid measures

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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

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.

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.

4.3 Indication of any immediate medical attention and special treatment needed

n.c.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water jet spray/foam/CO2/dry extinguisher

Unsuitable extinguishing media

None known

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

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.
Ensure sufficient supply of air.
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.

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Resolve leaks if this possible without risk.
 Prevent surface and ground-water infiltration, as well as ground penetration.
 Prevent from entering drainage system.
 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, sawdust) and dispose of according to Section 13.
 Flush residue using copious water.

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

Avoid contact with eyes or skin.
 Ensure good ventilation.
 Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
 Observe directions on label and instructions for use.

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.
 Not to be stored in gangways or stair wells.
 Store product closed and only in original packing.
 Protect from frost.

7.3 Specific end use(s)

No information available at present.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Diethanolamine						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - sewage treatment plant		PNEC	100	mg/l	
	Environment - sediment, freshwater		PNEC	0,092	mg/kg dry weight	
	Environment - marine		PNEC	0,002	mg/l	
	Environment - sediment, marine		PNEC	0,0092	mg/kg dry weight	
	Environment - freshwater		PNEC	0,02	mg/l	
	Environment - soil		PNEC	1,63	mg/kg dry weight	
	Environment - water, sporadic (intermittent) release		PNEC	0,095	mg/l	
	Environment - oral (animal feed)		PNEC	1,04	mg/kg feed	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,125	mg/m ³	

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Consumer	Human - dermal	Long term, systemic effects	DNEL	0,07	mg/kg body weight/day	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,06	mg/kg body weight/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,125	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	1	mg/m ³	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,13	mg/kg body weight/day	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	33	mg/m ³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,75	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,5	mg/m ³	

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.

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 (EN 166) with side protection, with danger of splashes.

Skin protection - Hand protection:
 Chemical resistant protective gloves (EN ISO 374).
 Recommended
 Protective gloves made of natural rubber latex (EN ISO 374).
 Minimum layer thickness in mm:
 0,5
 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:
 Normally not necessary.

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.

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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:	Colourless
Odour:	Characteristic
Melting point/freezing point:	There is no information available on this parameter.
Boiling point or initial boiling point and boiling range:	100 °C
Flammability:	Not combustible.
Lower explosion limit:	There is no information available on this parameter.
Upper explosion limit:	There is no information available on this parameter.
Flash point:	n.a.
Auto-ignition temperature:	No
Decomposition temperature:	There is no information available on this parameter.
pH:	7,5-8 (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:	23 hPa (20°C)
Density and/or relative density:	1 g/cm ³ (20°C)
Relative vapour density:	There is no information available on this parameter.
Particle characteristics:	Does not apply to liquids.

9.2 Other information

Explosives:	Product is not explosive.
Oxidising liquids:	No

SECTION 10: Stability and reactivity

10.1 Reactivity

Not to be expected

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

See also section 7.

None known

10.5 Incompatible materials

None known

10.6 Hazardous decomposition products

See also section 5.2

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).

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Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:						n.d.a.
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.

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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.

Diethanolamine						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	1600	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by inhalation:	LC0	0,2	mg/l	Rat	OECD 403 (Acute Inhalation Toxicity)	
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Dam. 1
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact)
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative Escherichia coli
Germ cell mutagenicity:				Mouse	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Germ cell mutagenicity:				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Carcinogenicity:	NOAEL	32	mg/kg bw/d	Rat	OECD 451 (Carcinogenicity Studies)	
Reproductive toxicity:	NOAEL	~12,75	mg/kg	Rat	OECD 443 (Extended One-Generation Reproductive Toxicity Study)	Possible risk of harm to the unborn child.
Reproductive toxicity:	NOAEL	~37,68	mg/kg/d	Rat	OECD 443 (Extended One-Generation Reproductive Toxicity Study)	Possible risk of impaired fertility.
Specific target organ toxicity - repeated exposure (STOT-RE), oral:	LOAEL	14	mg/kg bw/d	Rat	OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)	Target organ(s): liver, Target organ(s): blood, Target organ(s): cardiovascular system, Female
Symptoms:						breathing difficulties, respiratory distress, diarrhoea, coughing, gastrointestinal disturbances, mucous membrane irritation

2-methylisothiazol-3(2H)-one						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	285	mg/kg	Rat		

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Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat		
Symptoms:						mucous membrane irritation, watering eyes

11.2. Information on other hazards

Klimagesamwreiner 2K						
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).

Klimagesamwreiner 2K							
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:							The surfactant(s) contained in this mixture complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.
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.

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12.7. Other adverse effects:							No information available on other adverse effects on the environment.
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Diethanolamine							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
12.1. Toxicity to fish:	LC50	96h	1460	mg/l	Pimephales promelas		
12.1. Toxicity to daphnia:	EC10	21d	1,05	mg/l	Daphnia magna		
12.2. Persistence and degradability:		28d	93%		activated sludge	OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	Readily biodegradable
12.1. Toxicity to daphnia:	EC50	48h	55	mg/l	Daphnia magna	U.S. EPA-660/3-75-009	
12.3. Bioaccumulative potential:	Log Pow		-2,46			OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method)	
12.1. Toxicity to algae:	EC50	96h	19	mg/l	Pseudokirchneriella subcapitata	U.S. EPA ECOTOX Database	
12.1. Toxicity to algae:	EC10	72h	1,1	mg/l	Pseudokirchneriella subcapitata	U.S. EPA ECOTOX Database	
Toxicity to bacteria:	EC10	30min	>1000	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other organisms:	LC50	35d	>1000	mg/kg	Eisenia foetida		
Other organisms:	EC50	>60d	776	mg/kg	Eisenia foetida		

2-methylisothiazol-3(2H)-one							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.2. Persistence and degradability:	DOC		>70	%		OECD 309 (Aerobic Mineralisation in Surface Water - Simulation Biodegradation Test)	
12.3. Bioaccumulative potential:	Log Kow		-0,32			OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method)	
12.1. Toxicity to fish:	LC50	96h	6	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to fish:	LC50	96h	12,4	mg/l	Lepomis macrochirus		

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12.1. Toxicity to daphnia:	EC50	48h	1,68	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	0,445	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
Toxicity to bacteria:	EC50	16h	2,3	mg/l	Pseudomonas putida		
Toxicity to bacteria:	EC20	3h	34,6	mg/l	activated sludge		

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)

07 06 01 aqueous washing liquids and mother liquors

Recommendation:

Sewage disposal shall be discouraged.

Pay attention to local and national official regulations.

E.g. dispose at suitable refuse site.

E.g. suitable incineration plant.

For contaminated packing material

Pay attention to local and national official regulations.

Recommendation:

Empty container completely.

Uncontaminated packaging can be recycled.

Dispose of packaging that cannot be cleaned in the same manner as the substance.

15 01 02 plastic packaging

SECTION 14: Transport information

General statements

14.1. UN number or ID number: n.a.

Transport by road/by rail (ADR/RID)

14.2. UN proper shipping name:

14.3. Transport hazard class(es): n.a.

14.4. Packing group: n.a.

Classification code: n.a.

LQ: n.a.

14.5. Environmental hazards: Not applicable

Tunnel restriction code:

Transport by sea (IMDG-code)

14.2. UN proper shipping name:

14.3. Transport hazard class(es): n.a.

14.4. Packing group: n.a.

Marine Pollutant: n.a.

14.5. Environmental hazards: Not applicable

Transport by air (IATA)

14.2. UN proper shipping name:

14.3. Transport hazard class(es): n.a.

14.4. Packing group: n.a.

14.5. Environmental hazards: Not applicable

14.6. Special precautions for user

Unless specified otherwise, general measures for safe transport must be followed.

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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): 0 %

REGULATION (EC) No 648/2004

less than 5 %
 anionic surfactants
 non-ionic surfactants

BENZISOTHIAZOLINONE
 LAURYLAMINE DIPROPYLENEDIAMINE
 METHYLISOTHIAZOLINONE

Treated goods as per Regulation (EU) No. 528/2012 must display specific information on the label.

Please note Article 58 paragraph (3) subparagraph 2 of Regulation (EU) No. 528/2012.

Approval of the biocidal active substance may mean that special conditions are required for marketing the treated goods.

These are indicated in the approval of the active substance.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: 1-16

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
Skin Sens. 1, H317	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 (specified in Section 2 and 3).

H330 Fatal if inhaled.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

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

H317 May cause an allergic skin reaction.

H301 Toxic if swallowed.

H302 Harmful if swallowed.

H311 Toxic in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

EUH071 Corrosive to the respiratory tract.

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Skin Sens. — Skin sensitization
 Acute Tox. — Acute toxicity - oral
 Skin Irrit. — Skin irritation
 Eye Dam. — Serious eye damage
 Repr. — Reproductive toxicity
 STOT RE — Specific target organ toxicity - repeated exposure
 Acute Tox. — Acute toxicity - inhalation
 Acute Tox. — Acute toxicity - dermal
 Skin Corr. — Skin corrosion
 Aquatic Acute — Hazardous to the aquatic environment - acute
 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
 bw body weight
 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
 dw dry weight
 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

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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
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. 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
wwt wet weight

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:

Chemical Check GmbH, Chemical Check Platz 1-7, D-32839 Steinheim, Tel.: +49 5233 94 17 0, Fax: +49 5233 94 17 90

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Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

1.1 Product identifier

Klimaanlagenreiniger 2K

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

Relevant identified uses of the substance or mixture:

Air conditioning cleaner

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

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:

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
Flam. Liq.	3	H226-Flammable liquid and vapour.
Skin Irrit.	2	H315-Causes skin irritation.
Skin Sens.	1	H317-May cause an allergic skin reaction.
Aquatic Chronic	3	H412-Harmful to aquatic life with long lasting effects.

2.2 Label elements

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

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Warning

H226-Flammable liquid and vapour. H315-Causes skin irritation. H317-May cause an allergic skin reaction. H412-Harmful to aquatic life with long lasting effects.

P101-If medical advice is needed, have product container or label at hand. P102-Keep out of reach of children.

P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261-Avoid breathing vapours or spray. P273-Avoid release to the environment. P280-Wear protective gloves.

P333+P313-If skin irritation or rash occurs: Get medical advice / attention.

P501-Dispose of contents / container to an approved waste disposal facility.

Citral

(R)-p-mentha-1,8-diene

cineole

p-mentha-1,4(8)-diene

Pin-2(3)-ene

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

(R)-p-mentha-1,8-diene	
Registration number (REACH)	---
Index	601-096-00-2
EINECS, ELINCS, NLP, REACH-IT List-No.	227-813-5
CAS	5989-27-5
content %	10-<25
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 3, H412

Citral	
Registration number (REACH)	---
Index	605-019-00-3
EINECS, ELINCS, NLP, REACH-IT List-No.	226-394-6
CAS	5392-40-5
content %	1-<5

GB

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Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Skin Irrit. 2, H315 Skin Sens. 1, H317
---	---

p-mentha-1,4(8)-diene	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	209-578-0
CAS	586-62-9
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)

7-methyl-3-methyleneocta-1,6-diene	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	204-622-5
CAS	123-35-3
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411

Pin-2(3)-ene	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	201-291-9
CAS	80-56-8
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Acute Tox. 4, H302 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)

cineole	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	207-431-5
CAS	470-82-6
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Skin Sens. 1B, H317

Camphene	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	201-234-8
CAS	79-92-5
content %	0,1-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Sol. 1, H228 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)

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.

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.
Do not induce vomiting - give copious water to drink. Consult doctor immediately.

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.
reddening of the skin
Dermatitis (skin inflammation)
Allergic reaction

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

CO2
Extinction powder
Water jet spray
Alcohol resistant foam

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:
Oxides of carbon
Toxic gases
Possible build up of explosive/highly flammable vapour/air mixture.

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.
Cool container at risk with water.
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.

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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 surface and ground-water infiltration, as well as ground penetration.
 Prevent from entering drainage system.
 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.
 Do not wash away with water or watery cleaning agents.

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.
 Keep away from sources of ignition - Do not smoke.
 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.
 Not to be stored in gangways or stair wells.
 Store product closed and only in original packing.
 Observe special storage conditions.
 Protect from direct sunlight and warming.
 Store in a well-ventilated place.

7.3 Specific end use(s)

No information available at present.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

(R)-p-mentha-1,8-diene						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	14	µg/l	
	Environment - marine		PNEC	1,4	µg/l	
	Environment - sewage treatment plant		PNEC	1,8	mg/l	
	Environment - sediment, freshwater		PNEC	3,85	mg/kg dry weight	

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	Environment - sediment, marine		PNEC	0,3851	mg/kg dry weight	
	Environment - soil		PNEC	0,763	mg/kg dry weight	
	Environment - oral (animal feed)		PNEC	133	mg/kg	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	66,7	mg/m ³	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	9,5	mg/kg body weight/day	

cineole						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	57	µg/l	
	Environment - marine		PNEC	5,7	µg/l	
	Environment - sewage treatment plant		PNEC	10	mg/l	
	Environment - sediment, freshwater		PNEC	1,425	mg/kg	
	Environment - sediment, marine		PNEC	0,142	mg/kg	
	Environment - soil		PNEC	0,25	mg/kg	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	1,74	mg/m ³	
Consumer	Human - oral	Long term, systemic effects	DNEL	600	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	2	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	7,05	mg/m ³	

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.

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 nitrile gloves (EN ISO 374).
 Minimum layer thickness in mm:

0,5
 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.

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

Respiratory protection:
 Normally not necessary.
 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
Odour:	Characteristic
Melting point/freezing point:	There is no information available on this parameter.
Boiling point or initial boiling point and boiling range:	There is no information available on this parameter.
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:	52 °C
Auto-ignition temperature:	There is no information available on this parameter.
Decomposition temperature:	There is no information available on this parameter.
pH:	Not determined
Kinematic viscosity:	34 mm ² /s (40°C, There is no information available on this parameter.)
Solubility:	There is no information available on this parameter.
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:	0,97 g/cm ³ (40°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

See also section 7.

Heating, open flame, ignition sources

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10.5 Incompatible materials

See also section 7.

Avoid contact with strong oxidizing agents.

Avoid contact with strong alkalis.

Avoid contact with strong acids.

10.6 Hazardous decomposition products

See also section 5.2

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).

Klimaanlagenreiniger 2K						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:						n.d.a.
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.

(R)-p-mentha-1,8-diene						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	> 2000	mg/kg	Rat	OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method)	Female
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation:				Rabbit		Skin Irrit. 2
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Skin Sens. 1B
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Skin Sens. 1
Germ cell mutagenicity:				Mouse	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Germ cell mutagenicity:					OECD 479 (Genetic Toxicology - In Vitro Sister Chromatid Exchange assay in Mammalian Cells)	Negative Chinese hamster
Germ cell mutagenicity:					OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative Chinese hamster

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Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Symptoms:						diarrhoea, rash, itching, gastrointestinal disturbances, mucous membrane irritation, nausea and vomiting.
Symptoms:						diarrhoea, rash, itching, gastrointestinal disturbances, mucous membrane irritation, nausea and vomiting.

Citral						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	3450	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	2250	mg/kg	Rabbit		
Skin corrosion/irritation:						Irritant
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Yes (skin contact)
Symptoms:						respiratory distress, drowsiness, coughing, headaches, gastrointestinal disturbances, mucous membrane irritation, nausea

7-methyl-3-methylocta-1,6-diene						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit		
Aspiration hazard:						Yes
Symptoms:						mucous membrane irritation

Pin-2(3)-ene						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	500	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit		
Skin corrosion/irritation:				Rabbit		Irritant
Skin corrosion/irritation:				Human being		Skin Irrit. 215 min
Germ cell mutagenicity:					(Ames-Test)	Negative
Aspiration hazard:						Yes

cineole						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	2480	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit		
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact)

11.2. Information on other hazards

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Klimagesamwässerung 2K						
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).

Klimagesamwässerung 2K							
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) \geq 80%/28d: n.a.
Other information:	AOX		0	%			According to the recipe, contains no AOX.

(R)-p-mentha-1,8-diene							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.3. Bioaccumulative potential:	Log Kow		4,38			OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method)	37 °C, pH = 7.2
Other information:							Does not contain any organically bound halogens which can contribute to the AOX value in waste water.
12.1. Toxicity to fish:	LC50	96h	0,70	mg/l	Pimephales promelas	OECD 203 (Fish, Acute Toxicity Test)	

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12.1. Toxicity to daphnia:	EC50	48h	0,307-0,42	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	ErC50	72h	0,214-0,32	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/NOEL	96h	4	mg/l			
12.2. Persistence and degradability:		28d	80-92	%		OECD 301 D (Ready Biodegradability - Closed Bottle Test)	Readily biodegradable
12.2. Persistence and degradability:		28d	71	%		OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	Readily biodegradable
12.4. Mobility in soil:							Adsorption in ground.
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

Citral							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	6,78	mg/l	Leuciscus idus		
12.1. Toxicity to daphnia:	EC50	48h	6,8	mg/l	Daphnia magna		
12.1. Toxicity to algae:	EC50	72h	103,8	mg/l	Desmodesmus subspicatus		
Toxicity to bacteria:	EC50	30min	~160	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

Pin-2(3)-ene							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	0,303	mg/l			
12.1. Toxicity to daphnia:	EC50	48h	0,475	mg/l	Daphnia magna		
12.2. Persistence and degradability:		32d	37	%		OECD 301 C (Ready Biodegradability - Modified MITI Test (I))	Not readily biodegradable
12.2. Persistence and degradability:		28d	68	%		OECD 301 D (Ready Biodegradability - Closed Bottle Test)	Readily biodegradable
12.3. Bioaccumulative potential:	Log Pow		4,83-5,7				High
12.3. Bioaccumulative potential:	BCF		1845				

cineole							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
12.1. Toxicity to fish:	LC50	96h	57	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	

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12.1. Toxicity to fish:	NOEC/NOEL	96h	32	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	48h	100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>74	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/NOEL	72h	37	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	82	%		OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	Readily biodegradable
Toxicity to bacteria:	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

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)

07 07 99 wastes not otherwise specified

16 05 08 discarded organic chemicals consisting of or containing hazardous substances

Recommendation:

Sewage disposal shall be discouraged.

Pay attention to local and national official regulations.

E.g. dispose at suitable refuse site.

E.g. suitable incineration plant.

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

14.1. UN number or ID number:

1993

Transport by road/by rail (ADR/RID)

14.2. UN proper shipping name:

UN 1993 FLAMMABLE LIQUID, N.O.S. (D-LIMONENE)



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14.3. Transport hazard class(es): 3
 14.4. Packing group: III
 Classification code: F1
 LQ: 5 L
 14.5. Environmental hazards: Not applicable
 Tunnel restriction code: D/E

Transport by sea (IMDG-code)

14.2. UN proper shipping name:
 FLAMMABLE LIQUID, N.O.S. (D-LIMONENE)
 14.3. Transport hazard class(es): 3
 14.4. Packing group: III
 EmS: F-E, S-E
 Marine Pollutant: n.a.
 14.5. Environmental hazards: Not applicable



Transport by air (IATA)

14.2. UN proper shipping name:
 Flammable liquid, n.o.s. (D-LIMONENE)
 14.3. Transport hazard class(es): 3
 14.4. Packing group: III
 14.5. Environmental hazards: Not applicable



14.6. Special precautions for user

Persons employed in transporting dangerous goods must be trained.
 All persons involved in transporting must observe safety regulations.
 Precautions must be taken to prevent damage.

14.7. Maritime transport in bulk according to IMO instruments

Freighted as packaged goods rather than in bulk, therefore not applicable.
 Minimum amount regulations have not been taken into account.
 Danger code and packing code on request.
 Comply with special provisions.

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 2012/18/EU ("Seveso III"), Annex I, Part 1 - The following categories apply to this product (others may also need to be considered according to storage, handling etc.):

Hazard categories	Notes to Annex I	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Lower-tier requirements	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Upper-tier requirements
P5c		5000	50000

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Directive 2010/75/EU (VOC): ~ 14 %

Observe incident regulations.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections:

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Employee training in handling dangerous goods is required.
 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
Flam. Liq. 3, H226	Classification based on test data.
Skin Irrit. 2, H315	Classification according to calculation procedure.
Skin Sens. 1, H317	Classification according to calculation procedure.
Aquatic Chronic 3, H412	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 (specified in Section 2 and 3).

H226 Flammable liquid and vapour.
 H228 Flammable solid.
 H317 May cause an allergic skin reaction.
 H302 Harmful if swallowed.
 H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 H411 Toxic to aquatic life with long lasting effects.
 H412 Harmful to aquatic life with long lasting effects.

Flam. Liq. — Flammable liquid
 Skin Irrit. — Skin irritation
 Skin Sens. — Skin sensitization
 Aquatic Chronic — Hazardous to the aquatic environment - chronic
 Asp. Tox. — Aspiration hazard
 Aquatic Acute — Hazardous to the aquatic environment - acute
 Eye Irrit. — Eye irritation
 Acute Tox. — Acute toxicity - oral
 Flam. Sol. — Flammable solid

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
bw	body weight
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
dw	dry weight
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
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

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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
wwt wet weight

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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