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 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 16.08.2023 / 0003
 Replacing version dated / version: 01.11.2021 / 0002
 Valid from: 16.08.2023
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 COSMO® SL-640.110

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

COSMO® SL-640.110

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

Relevant identified uses of the substance or mixture:

Surface treatment

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

Weiss Chemie + Technik GmbH & Co. KG
 Hansastrasse 2
 35708 Haiger
 Tel: +49 (0) 2773 / 815-0
 msds@weiss-chemie.de
 www.weiss-chemie.de

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 (WIC)
 +1 872 5888271 (WIC)

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.	2	H225-Highly flammable liquid and vapour.
Acute Tox.	4	H302-Harmful if swallowed.
STOT SE	3	H335-May cause respiratory irritation.
Skin Irrit.	2	H315-Causes skin irritation.
Eye Dam.	1	H318-Causes serious eye damage.
STOT SE	3	H336-May cause drowsiness or dizziness.
Carc.	2	H351-Suspected of causing cancer.

2.2 Label elements

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



Danger

H225-Highly flammable liquid and vapour. H302-Harmful if swallowed. H335-May cause respiratory irritation. H315-Causes skin irritation. H318-Causes serious eye damage. H336-May cause drowsiness or dizziness. H351-Suspected of causing cancer.

P201-Obtain special instructions before use. P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P243-Take action to prevent static discharges. P261-Avoid breathing vapours or spray. P280-Wear protective gloves / protective clothing / eye protection / face protection.
 P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313-IF exposed or concerned: Get medical advice / attention.
 P403+P233-Store in a well-ventilated place. Keep container tightly closed.

EUH019-May form explosive peroxides.

Tetrahydrofuran
 Cyclohexanone

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

Tetrahydrofuran	Substance for which an EU exposure limit value applies.
Registration number (REACH)	01-2119444314-46-XXXX
Index	603-025-00-0
EINECS, ELINCS, NLP, REACH-IT List-No.	203-726-8
CAS	109-99-9
content %	80-<100
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	EUH019 Flam. Liq. 2, H225 Acute Tox. 4, H302 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335 STOT SE 3, H336
Specific Concentration Limits and ATE	Eye Irrit. 2, H319: >=25 % STOT SE 3, H335: >=25 %

Cyclohexanone	
Registration number (REACH)	01-2119453616-35-XXXX
Index	606-010-00-7
EINECS, ELINCS, NLP, REACH-IT List-No.	203-631-1
CAS	108-94-1
content %	10-<20
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335

Impurities, test data and additional information may have been taken into account in classifying and labelling the product.

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.

If the person is unconscious, place in a stable side position and consult a doctor.

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 - call doctor immediately, have Data Sheet available.

Protect uninjured eye.

Follow-up examination by an ophthalmologist.

Ingestion

Rinse the mouth thoroughly with water.

Do not induce vomiting. 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.

eyes, reddened

watering eyes

Conjunctivitis

reddening of the skin

Dermatitis (skin inflammation)

Irritant to mucosa of the nose and throat

coughing

headaches

dizziness

mental confusion

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

Extinguishing 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

Danger of bursting (explosion) when heated

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.

According to size of fire

Full protection, if necessary.

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.

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Avoid dust formation with solid or powder products.
 Leave the danger zone if possible, use existing emergency plans if necessary.
 Keep non-essential personnel away.
 Remove possible causes of ignition - do not smoke.
 Ensure sufficient supply of air.
 Avoid inhalation, and 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.
 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 inhalation of the vapours.
 If applicable, suction measures at the workstation or on the processing machine necessary.
 Keep away from sources of ignition - Do not smoke.
 Take measures against electrostatic charging, if appropriate.
 Avoid contact with eyes or skin.
 Handle and open container with care.
 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 packaging.
 Observe special storage conditions.
 Do not store with flammable or self-igniting materials.
 Solvent resistant floor
 Protect from direct sunlight and warming.
 Store cool.
 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

Chemical Name	Tetrahydrofuran	
WEL-TWA: 50 ppm (150 mg/m3) (WEL, EU)	WEL-STEL: 100 ppm (300 mg/m3) (WEL, EU)	---
Monitoring procedures:	- Compur - KITA-102 SA(C) (548 534) - Compur - KITA-162 U (550 366) - DFG (D) Meth.-Nr. 2 (Tetrahydrofuran), DFG (E) (Tetrahydrofuran) - 2014, 1999 - INSHT MTA/MA-049/A01 (Determination of tetrahydrofuran in air - Charcoal tube method / Gas chromatography) - 2001 - EU project BC/CEN/ENTR/000/2002-16 card 24-1 (2004) - NIOSH 1609 (TETRAHYDROFURAN) - 1994 - NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016	
BMGV: ---	Other information: Sk (WEL)	

Chemical Name	Cyclohexanone	
WEL-TWA: 10 ppm (41 mg/m3) (WEL, EU), 10 ppm (40,8 mg/m3) (EU)	WEL-STEL: 20 ppm (82 mg/m3) (WEL, EU), 20 ppm (81,6 mg/m3) (EU)	---
Monitoring procedures:	- Compur - KITA-197 U (548 972) - MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993 - MDHS 80 (Volatile organic compounds in air – Laboratory method using diffusive solid sorbent tubes, thermal desorption and gas chromatography) - 1995 - NIOSH 1300 (KETONES I) - 1994 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - NIOSH 2555 (KETONES II) - 2003 - OSHA 01 (Cyclohexanone) - 1979	
BMGV: 2 mmol cyclohexanol/mol creatinine in urine, post shift (BMGV)	Other information: Sk (WEL)	

Tetrahydrofuran						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	4,32	mg/l	
	Environment - marine		PNEC	0,432	mg/l	

	Environment - sediment, freshwater		PNEC	23,3	mg/kg	
	Environment - sediment, marine		PNEC	2,33	mg/kg	
	Environment - soil		PNEC	2,13	mg/kg	
	Environment - oral (animal feed)		PNEC	67	mg/kg	
	Environment - sewage treatment plant		PNEC	4,6	mg/l	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	52	mg/m3	
Consumer	Human - inhalation	Short term, local effects	DNEL	150	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1,5	mg/kg bw/d	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	13	mg/m3	
Consumer	Human - inhalation	Long term, local effects	DNEL	75	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	1,5	mg/kg bw/d	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	96	mg/m3	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	300	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	12,6	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	72,4	mg/m3	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	150	mg/m3	

Cyclohexanone						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,356	mg/l	
	Environment - marine		PNEC	0,0356	mg/l	
	Environment - sporadic (intermittent) release		PNEC	3,23	mg/l	
	Environment - sediment, freshwater		PNEC	2,69	mg/kg dry weight	
	Environment - soil		PNEC	0,328	mg/kg dry weight	
	Environment - sewage treatment plant		PNEC	10	mg/l	
	Environment - sediment, marine		PNEC	0,269	mg/kg	
Consumer	Human - dermal	Short term, systemic effects	DNEL	1	mg/kg	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	20	mg/kg	
Consumer	Human - oral	Short term, systemic effects	DNEL	1,5	mg/kg	
Consumer	Human - inhalation	Short term, local effects	DNEL	40	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1	mg/kg	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	2,55	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	1,5	mg/kg bw/day	
Consumer	Human - inhalation	Long term, local effects	DNEL	20	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	4	mg/kg	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	4	mg/kg	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	20	mg/m3	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	20	mg/m3	
Workers / employees	Human - dermal	Short term, local effects	DNEL	10	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	10	mg/m3	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	10	mg/m3	

WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40, AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany).
 (8) = Inhalable fraction (Directive 2017/164/EU, Directive 2004/37/CE), (9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/CE), (11) = Inhalable fraction (Directive 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 (Directive 2004/37/CE). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period).
 (8) = Inhalable fraction (2017/164/EU, 2017/2398/EU), (9) = Respirable fraction (2017/164/EU, 2017/2398/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, BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma, Sk = Can be absorbed through skin, Carc = Capable of causing cancer and/or heritable genetic damage.
 ** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.
 (13) = The substance can cause sensitisation of the skin and of the respiratory tract (Directive 2004/37/CE), (14) = The substance can cause sensitisation of the skin (Directive 2004/37/CE).

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".

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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:

Solvent resistant protective gloves (EN ISO 374).

With short-term contact:

Protective gloves in butyl rubber (EN ISO 374).

Minimum layer thickness in mm:

>= 0,70

Permeation time (penetration time) in minutes:

>= 10

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:

Solvent resistant protection clothing (EN 13034)

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:

Colour:

Odour:

Melting point/freezing point:

Boiling point or initial boiling point and boiling range:

Flammability:

Lower explosion limit:

Upper explosion limit:

Flash point:

Auto-ignition temperature:

Decomposition temperature:

pH:

Kinematic viscosity:

Solubility:

Partition coefficient n-octanol/water (log value):

Vapour pressure:

Density and/or relative density:

Relative vapour density:

Particle characteristics:

9.2 Other information

Explosives:

When using: development of explosive vapour/air mixture possible.

Oxidising liquids:

No

SECTION 10: Stability and reactivity

10.1 Reactivity

Can form explosive peroxides.

10.2 Chemical stability

Stable with proper storage and handling.

10.3 Possibility of hazardous reactions

Oxygen in the presence of light (peroxide creation)

10.4 Conditions to avoid

See also section 7.

Heating, open flame, ignition sources

Electrostatic charge

10.5 Incompatible materials

Avoid contact with strong oxidizing agents.

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
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Acute toxicity, by oral route:	ATE	1650	mg/kg			calculated value
Acute toxicity, by dermal route:	ATE	>2000	mg/kg			calculated value
Acute toxicity, by inhalation:	ATE	>20	mg/l/4h			calculated value, Vapours
Acute toxicity, by inhalation:	ATE	>5	mg/l/4h			calculated value, Aerosol
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.

Tetrahydrofuran						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	1650	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	LC50	>14,7	mg/l/6h	Rat		
Skin corrosion/irritation:				Rabbit		Not irritant
Serious eye damage/irritation:				Rabbit	(Draize-Test)	Intensely irritant
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	No (skin contact)
Germ cell mutagenicity:				Mammalian	OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Germ cell mutagenicity:				Mammalian	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Carcinogenicity:	NOAEC	1800	ppm	Rat		
Reproductive toxicity:	NOAEL	1800	ppm	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	
Reproductive toxicity:	NOAEL	9000	mg/kg	Rat	OECD 416 (Two-generation Reproduction Toxicity Study)	
Specific target organ toxicity - single exposure (STOT-SE):						STOT SE 3, H335, STOT SE 3, H336
Specific target organ toxicity - repeated exposure (STOT-RE), oral:	NOAEL	113,3	mg/kg	Rat	OECD 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)	
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAEC	1800	ppm/6h/d	Rat		(14 d)
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAEC	200	ppm/6h/d	Mouse		(14 d)
Symptoms:						respiratory distress, chest pain (thorax pain), coughing, itching, headaches, ear noises, drowsiness, mucous membrane irritation, dizziness, visual disturbances, nausea and vomiting.

Cyclohexanone						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes

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Acute toxicity, by oral route:	LD50	1800	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	1100	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LC50	11	mg/l/4h	Rat		Vapours
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2
Respiratory or skin sensitisation:						Not sensitising
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Carcinogenicity:						Negative
Reproductive toxicity:					OECD 416 (Two-generation Reproduction Toxicity Study)	Negative

11.2. Information on other hazards

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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).

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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

Tetrahydrofuran

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	2160	mg/l	Pimephales promelas	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to fish:	NOEC/N OEL	33d	216	mg/l	Pimephales promelas		
12.1. Toxicity to daphnia:	LC50	48h	3485	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	NOEC/N OEL	8d	3700	mg/l	Scenedesmus quadricauda		
12.2. Persistence and degradability:		28d	39	%		OECD 301 D (Ready Biodegradability - Closed Bottle Test)	Not readily biodegradable

12.3. Bioaccumulative potential:	Log Pow		0,45				OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method)	@25°C
12.3. Bioaccumulative potential:	BCF		598,4					
12.5. Results of PBT and vPvB assessment:								No PBT substance, No vPvB substance
Toxicity to bacteria:	LC50	3h	460	mg/l	activated sludge		OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

Cyclohexanone

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.2. Persistence and degradability:		28d	90-100	%		OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	
12.1. Toxicity to fish:	LC50	96h	527-732	mg/l	Pimephales promelas		
12.1. Toxicity to daphnia:	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>100	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/N OEL	72h	>100	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
Toxicity to bacteria:	EC50	30min	>1000	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 01 04 other organic solvents, washing liquids and mother liquors
 14 06 03 other solvents and solvent mixtures
 20 01 13 Solvents

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.
 Do not perforate, cut up or weld uncleaned container.
 Residues may present a risk of explosion.
 15 01 10 packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

General statements

Transport by road/by rail (ADR/RID)

14.1. UN number or ID number: 1993
 14.2. UN proper shipping name: UN 1993 FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN, CYCLOHEXANONE)
 14.3. Transport hazard class(es): 3
 14.4. Packing group: II
 14.5. Environmental hazards: Not applicable
 Tunnel restriction code: D/E
 Classification code: F1
 LQ: 1 L
 Transport category: 2

Transport by sea (IMDG-code)

14.1. UN number or ID number: 1993
 14.2. UN proper shipping name: UN 1993 FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN, CYCLOHEXANONE)
 14.3. Transport hazard class(es): 3
 14.4. Packing group: II
 14.5. Environmental hazards: Not applicable
 Marine Pollutant: Not applicable
 EMS: F-E, S-E

Transport by air (IATA)

14.1. UN number or ID number: 1993

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14.2. UN proper shipping name:
 UN 1993 Flammable liquid, n.o.s. (TETRAHYDROFURAN, CYCLOHEXANONE)
 14.3. Transport hazard class(es): 3
 14.4. Packing group: II
 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): 100 %

Observe incident regulations.

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: 3, 7, 11, 12, 14, 15
 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. 2, H225	Classification based on test data.
Acute Tox. 4, H302	Classification according to calculation procedure.
STOT SE 3, H335	Classification according to calculation procedure.
Skin Irrit. 2, H315	Classification according to calculation procedure.
Eye Dam. 1, H318	Classification according to calculation procedure.
STOT SE 3, H336	Classification according to calculation procedure.
Carc. 2, H351	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).

H225 Highly flammable liquid and vapour.
 H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H312 Harmful in contact with skin.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H351 Suspected of causing cancer.
 EUH019 May form explosive peroxides.

Flam. Liq. — Flammable liquid
 Acute Tox. — Acute toxicity - oral
 STOT SE — Specific target organ toxicity - single exposure - respiratory tract irritation
 Skin Irrit. — Skin irritation
 Eye Dam. — Serious eye damage
 STOT SE — Specific target organ toxicity - single exposure - narcotic effects
 Carc. — Carcinogenicity
 Eye Irrit. — Eye irritation
 Acute Tox. — Acute toxicity - dermal
 Acute Tox. — Acute toxicity - inhalation

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, EjuCx, 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
 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:

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