SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

TRIGONOX V328

Version	Revision Date:	AT / EN	Date of last issue: 27.08.2021
3.1	16.12.2022		Date of first issue: 04.05.2015

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

1.1 Product identifier

Trade name : TRIGONOX V328

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

Use of the Substance/Mixture : Curing agent

1.3 Details of the supplier of the safety data sheet

Company : Nouryon Functional Chemicals B.V.
Haaksbergweg 88
NL 1101 BZ Amsterdam
Netherlands

Telephone : +31889840367

E-mail address of person responsible for the SDS : polymer.emeia@nouryon.com

1.4 Emergency telephone number

Emergency telephone number : 24 hours:+31 57 06 79211, US-CHEMTREC:1-800-424-9300, CA-CANUTEC:1-613-996-6666, JP: +81 (836) 74 8810, CN: 化学事故应急咨询电话：+86 532 8388 9090

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Organic peroxides, Type D	H242: Heating may cause a fire.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H302 + H332 Harmful if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Hazardous components which must be listed on the label:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane
Diethylene glycol

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	1338-23-4 215-661-2 01-2119514691-43	Org. Perox. A; H240 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Corr. 1B; H314 Eye Dam. 1; H318 --- Acute toxicity estimate Acute oral toxicity: 1.017 mg/kg Acute inhalation toxicity (dust/mist): 1,5 mg/l	25 - 30
Diethylene glycol	111-46-6 203-872-2 603-140-00-6 01-2119457857-21	Acute Tox. 4; H302 --- Acute toxicity estimate Acute oral toxicity: 300,03 mg/kg	25 - 30
Methyl ethyl ketone	78-93-3 201-159-0 606-002-00-3 01-2119457290-43	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 (Central nervous system) EUH066	5 - 10
Hydrogen peroxide solution	7722-84-1 231-765-0 008-003-00-9 01-2119485845-22	Ox. Liq. 1; H271 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335	2 - 3,2

		(Respiratory system) Aquatic Chronic 3; H412 --- specific concentration limit Ox. Liq. 1; H271 >= 70 % Ox. Liq. 2; H272 50 - < 70 % Skin Corr. 1A; H314 >= 70 % Skin Corr. 1B; H314 50 - < 70 % Skin Irrit. 2; H315 35 - < 50 % Eye Dam. 1; H318 8 - < 50 % Eye Irrit. 2; H319 5 - < 8 % STOT SE 3; H335 >= 35 % Aquatic Chronic 3; H412 >= 63 % --- Acute toxicity estimate Acute oral toxicity: 431 mg/kg Acute inhalation toxicity (dust/mist): 1,5 mg/l	

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Immediate medical attention is required.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : If breathed in, move person into fresh air.
Consult a physician after significant exposure.

In case of skin contact	:	Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
In case of eye contact	:	Rinse with plenty of water. Get medical attention immediately. Continue to rinse during transport. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. Do not induce vomiting! May cause chemical burns in mouth and throat.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.
Risks	:	Harmful if swallowed or if inhaled. Causes serious eye damage. Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	CAUTION: reignition may occur. Supports combustion. Water spray may be ineffective unless used by experienced

firefighters.
Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous decomposition products formed under fire conditions.

Hazardous combustion products : Fire will produce smoke containing hazardous combustion products (see section 10).
Carbon oxides
Oxygen

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use water spray to cool unopened containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Wear respiratory protection.
Ensure adequate ventilation.
Remove all sources of ignition.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Evacuate personnel to safe areas.
Only qualified personnel equipped with suitable protective equipment may intervene.
Prevent unauthorised persons entering the zone.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material and dispose of as hazardous waste.
Use only inert inorganic material such as vermiculite or perlite as absorbent.

Keep mixture of absorbent material and spilled product wetted with water.
Confinement must be avoided.
Never return spills in original containers for re-use.

6.4 Reference to other sections

For disposal considerations see section 13.
For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	For personal protection see section 8. Avoid formation of aerosol. Do not breathe vapours or spray mist. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Container may be opened only under exhaust ventilation hood. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Use explosion protected equipment. Avoid formation of aerosol. Keep away from sources of ignition - No smoking. No sparking tools should be used. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Do not cut or weld on or near this container even when empty. Take measures to prevent the build up of electrostatic charge. Keep away from combustible material.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.
Temperature class	:	It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	No smoking. Keep in a well-ventilated place. Electrical installations / working materials must comply with the technological safety standards. Keep only in original container. Store away from other materials.

Further information on storage stability : No decomposition if stored and applied as directed.

Maximum storage temperature is for quality only.

Maximum storage temperature: : 25 °C

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Diethylene glycol	111-46-6	MAK-TMW	10 ppm 44 mg/m3	AT OEL
		MAK-KZW	40 ppm 176 mg/m3	AT OEL
Methyl ethyl ketone	78-93-3	STEL	300 ppm 900 mg/m3	2000/39/EC
	Further information: Indicative			
		TWA	200 ppm 600 mg/m3	2000/39/EC
	Further information: Indicative			
		MAK-TMW	100 ppm 295 mg/m3	AT OEL
	Further information: Risk of skin absorption			
		MAK-KZW	200 ppm 590 mg/m3	AT OEL
	Further information: Risk of skin absorption			
Hydrogen peroxide solution	7722-84-1	MAK-TMW	1 ppm 1,4 mg/m3	AT OEL
		MAK-KZW	2 ppm 2,8 mg/m3	AT OEL

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Formic acid	64-18-6	TWA	5 ppm 9 mg/m3	2006/15/EC

	Further information: Indicative			
		MAK-TMW	5 ppm 9 mg/m3	AT OEL
		MAK-KZW	5 ppm 9 mg/m3	AT OEL
Organic acid	64-19-7	TWA	10 ppm 25 mg/m3	2017/164/EU
	Further information: Indicative			
		STEL	20 ppm 50 mg/m3	2017/164/EU
	Further information: Indicative			
		MAK-TMW	10 ppm 25 mg/m3	AT OEL
		MAK-KZW	20 ppm 50 mg/m3	AT OEL
Fatty acid	79-09-4	STEL	20 ppm 62 mg/m3	2000/39/EC
	Further information: Indicative			
		TWA	10 ppm 31 mg/m3	2000/39/EC
	Further information: Indicative			
		MAK-TMW	10 ppm 31 mg/m3	AT OEL
		MAK-KZW	20 ppm 62 mg/m3	AT OEL
Methyl ethyl ketone	78-93-3	STEL	300 ppm 900 mg/m3	2000/39/EC
	Further information: Indicative			
		TWA	200 ppm 600 mg/m3	2000/39/EC
	Further information: Indicative			
		MAK-TMW	100 ppm 295 mg/m3	AT OEL
	Further information: Risk of skin absorption			
		MAK-KZW	200 ppm 590 mg/m3	AT OEL
	Further information: Risk of skin absorption			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	Consumers	Skin contact	Long-term systemic effects	0,54 mg/kg

	Consumers	Inhalation	Long-term systemic effects	0,41 mg/m3
	Consumers	Ingestion	Long-term systemic effects	0,27 mg/kg
	Workers	Skin contact	Long-term systemic effects	1,08 mg/kg
	Workers	Inhalation	Long-term systemic effects	1,9 mg/m3
Methyl ethyl ketone	Workers	Inhalation	Long-term systemic effects	600 mg/m3
	Workers	Skin contact	Long-term systemic effects	1161 mg/kg
	Consumers	Inhalation	Long-term systemic effects	106 mg/m3
	Consumers	Skin contact	Long-term systemic effects	412 mg/kg
	Consumers	Ingestion	Long-term systemic effects	31 mg/kg
Diethylene glycol	Workers	Inhalation	Long-term systemic effects	44 mg/m3
	Workers	Inhalation	Long-term local effects	60 mg/m3
	Workers	Dermal	Long-term systemic effects	43 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	12 mg/m3
	Consumers	Inhalation	Long-term local effects	12 mg/m3
	Consumers	Dermal	Long-term systemic effects	21 mg/kg bw/day
Dimethyl phthalate	Consumers	Ingestion	Long-term systemic effects	25 mg/kg
	Consumers	Inhalation	Long-term systemic effects	86,96 mg/m3
	Consumers	Skin contact	Long-term systemic effects	60 mg/kg
	Workers	Inhalation	Long-term systemic effects	293,86 mg/m3
	Workers	Skin contact	Long-term systemic effects	100 mg/kg
Hydrogen peroxide solution	Workers	Inhalation	Acute local effects	3 mg/m3
	Workers	Inhalation	Long-term local effects	1,4 mg/m3
	Consumers	Inhalation	Long-term local effects	0,21 mg/m3
	Consumers	Inhalation	Acute local effects	1,93 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	Fresh water	0,0056 mg/l
	Intermittent water	0,056 mg/l
	Marine water	0,00056 mg/l
	Fresh water sediment	0,019 mg/kg dry weight
	Marine sediment	0,0019 mg/kg dry weight
	Sewage treatment plant	1,2 mg/l
	Soil	0,00231 mg/kg dry weight
Methyl ethyl ketone	Fresh water	55,8 mg/l
	Marine water	55,8 mg/l
	Intermittent water	55,8 mg/l
	Sewage treatment plant	709 mg/l
	Fresh water sediment	284,74 mg/kg dry weight
	Marine sediment	284,74 mg/kg dry weight
	Soil	22,5 mg/kg dry weight
	Oral	1000 mg/kg food
Diethylene glycol	Fresh water	10 mg/l
	Marine water	1 mg/l
	Intermittent water	10 mg/l
	Sewage treatment plant	199,5 mg/l
	Fresh water sediment	20,9 mg/kg dry weight (d.w.)
	Marine sediment	2,09 mg/kg dry weight (d.w.)
	Soil	1,53 mg/kg dry weight (d.w.)
Dimethyl phthalate	Fresh water	0,192 mg/l
	Marine water	0,0192 mg/l
	Intermittent water	0,39 mg/l
	Sewage treatment plant	4 mg/l
	Fresh water sediment	1,403 mg/kg dry weight
	Soil	3,16 mg/kg dry weight
Hydrogen peroxide solution	Fresh water	0,0126 mg/l
	Marine water	0,0126 mg/l

	Soil	0,0023 mg/kg
	Sewage treatment plant	4,66 mg/l
	Fresh water sediment	0,047 mg/kg
	Marine sediment	0,047 mg/kg
	Intermittent water	0,0138 mg/l

8.2 Exposure controls

Engineering measures

Explosion proof ventilation recommended.
Effective exhaust ventilation system
Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection : Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hand protection
Material : Neoprene

Material : Nitrile rubber

Material : butyl-rubber
Break through time : >= 480 min
Glove thickness : 0,5 mm

Remarks : Breakthrough time is not determined for the product. Change gloves often!
The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove.

Skin and body protection : Protective suit

Respiratory protection : In the case of vapour or aerosol formation use a respirator with an approved filter.
Filter A

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : colourless

Odour	:	Faint.
Odour Threshold	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	Decomposes below the boiling point.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	29 °C Method: closed cup
Auto-ignition temperature	:	Test method not applicable
Decomposition temperature	:	SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	:	50 °C
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	(20 °C) partly miscible
Solubility in other solvents	:	(20 °C) Description: Slightly soluble in:, Phthalates
Partition coefficient: n-	:	No data available

octanol/water		
Vapour pressure	:	not determined
Relative density	:	1,112 (20 °C)
Bulk density	:	Not applicable
Relative vapour density	:	No data available

9.2 Other information

Explosives	:	Not explosive
Oxidizing properties	:	Not classified as oxidising.
Flammability (liquids)	:	Flammable liquid and vapour. Remarks: Decomposition products may be flammable.
Self-ignition	:	The substance or mixture is not classified as pyrophoric.
Evaporation rate	:	No data available
Active Oxygen Content	:	8,8 - 9,1 %
Organic peroxides	:	30 %

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid	:	Confinement must be avoided. Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid	:	Contact with the following incompatible materials will result in hazardous decomposition:

Acids and bases
Iron
Copper
Reducing agents
Heavy metals
Rust
Do not mix with peroxide accelerators, unless under controlled processing.
Use only stainless steel 316, PP, polyethylene or glass-lined equipment.
For queries regarding the suitability of other materials please contact the supplier.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

Hazardous decomposition products	:	Formic acid Organic acid Fatty acid Methyl ethyl ketone Carbon oxides
Thermal decomposition	:	SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	:	50 °C

SECTION 11: Toxicological information

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

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

Acute oral toxicity	:	LD50 Oral (rats): 792 mg/kg Method: OECD Test Guideline 401 Remarks: The value is calculated
Acute inhalation toxicity	:	LC50 (Rat): 2,0 mg/l

Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: The value is calculated

Acute dermal toxicity : LD50 (Rabbit): 5.517 mg/kg
Method: OECD Test Guideline 402
Remarks: The value is calculated

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Acute oral toxicity : LD50 (Rat, male): 1.017 mg/kg
Method: OECD Test Guideline 401

Acute toxicity estimate: 1.017 mg/kg
Method: Calculation method

Acute inhalation toxicity : LC50 (Rat, male and female): 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: no

Acute toxicity estimate: 1,5 mg/l
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit, male and female): 4.000 mg/kg
Method: OECD Test Guideline 402

Diethylene glycol:

Acute oral toxicity : LD50 Oral (Rat, male and female): > 300 - 2.000 mg/kg

Acute toxicity estimate: 300,03 mg/kg
Method: Calculation method

Acute inhalation toxicity : Remarks: Not classified due to data which are conclusive although insufficient for classification.

Acute dermal toxicity : Remarks: Based on available data, the classification criteria are not met.

Methyl ethyl ketone:

Acute oral toxicity : LD50 (Rat): 2.737 mg/kg

Acute dermal toxicity : LD50 (Rabbit): 6.480 mg/kg

Hydrogen peroxide solution:

Acute oral toxicity : LD50 (Rat): 431 mg/kg
Method: OECD Test Guideline 401
Remarks: Information taken from reference works and the literature.

Acute toxicity estimate: 431 mg/kg
Method: Calculation method

Acute inhalation toxicity : LC50: 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Acute toxicity estimate: 1,5 mg/l
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : LD50 Dermal (Rabbit, male): > 5.000 mg/kg
Remarks: Information taken from reference works and the literature.

Skin corrosion/irritation

Causes severe burns.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Result : Causes burns.

Diethylene glycol:

Species : Rabbit
Exposure time : 23 h
Method : Draize Test
Result : No skin irritation
Remarks : Information taken from reference works and the literature.

Methyl ethyl ketone:

Result : Repeated exposure may cause skin dryness or cracking.
Remarks : Moderately irritating.

Hydrogen peroxide solution:
Result : Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:
Result : Risk of serious damage to eyes.

Diethylene glycol:
Species : Rabbit
Exposure time : 24 h
Result : No eye irritation
Remarks : Information taken from reference works and the literature.

Methyl ethyl ketone:
Result : Irritating to eyes.

Hydrogen peroxide solution:
Assessment : Causes severe burns.

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:
Assessment : Does not cause skin sensitisation.

Diethylene glycol:
Test Type : Maximisation Test
Species : Guinea pig

Method	:	Regulation (EC) No. 440/2008, Annex, B.6
Result	:	Does not cause skin sensitisation.
GLP	:	yes

Germ cell mutagenicity

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Genotoxicity in vitro	:	Test Type: Ames test Result: negative
Genotoxicity in vivo	:	Remarks: Not classified due to data which are conclusive although insufficient for classification.

Diethylene glycol:

Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse (male) Cell type: Bone marrow Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative GLP: yes

Hydrogen peroxide solution:

Genotoxicity in vivo	:	Species: Mouse (male and female) Application Route: Intraperitoneal Method: Mutagenicity (micronucleus test) Result: negative GLP: yes Remarks: Information taken from reference works and the literature.

Carcinogenicity

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Remarks : No data available

Diethylene glycol:

Species : Rat, male and female
Application Route : Oral
NOAEL : > 1.160 mg/kg bw/day
Remarks : Information taken from reference works and the literature.

Reproductive toxicity

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 0 25, 50, 75 milligram per kilogram
General Toxicity - Parent: NOAEL: 50 mg/kg bw/day
General Toxicity F1: NOAEL F1: 50 mg/kg bw/day
Fertility: NOAEL Parent: 75 mg/kg bw/day
Method: OECD Test Guideline 421
GLP: yes

Diethylene glycol:

Effects on fertility : Test Type: Two-generation study
Species: Mouse, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: 3.060 mg/kg bw/day

Effects on foetal development : Test Type: Pre-natal
Species: Rabbit
Application Route: Oral
General Toxicity Maternal: NOAEL: 1.000 mg/kg bw/day
Method: OECD Test Guideline 414
GLP: yes

STOT - single exposure

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Remarks : Not classified due to data which are conclusive although insufficient for classification.

Methyl ethyl ketone:

Exposure routes : Inhalation
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT - repeated exposure

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

Diethylene glycol:

Species : Rat, male and female
NOAEL : 936 mg/kg bw/day
Application Route : Oral
Method : OECD Test Guideline 407
GLP : yes

Species : Dog, male
NOAEL : 2220 mg/kg bw/day
Application Route : Dermal
Method : OECD Test Guideline 410
GLP : yes

Aspiration toxicity

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

No aspiration toxicity classification

Methyl ethyl ketone:

No aspiration toxicity classification

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks	:	Solvents may degrease the skin.
Remarks	:	No further data available.

Components:

Hydrogen peroxide solution:

Remarks	:	No further data available.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Poecilia reticulata (guppy)): 61 mg/l Exposure time: 96 h Test Type: semi-static test Remarks: The value is calculated
Toxicity to daphnia and other aquatic invertebrates	:	(Daphnia magna (Water flea)): 54 mg/l Exposure time: 48 h

Test Type: Immobilization
GLP: yes
Remarks: The value is calculated

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (algae)): 7,7 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Remarks: The value is calculated

Toxicity to microorganisms : EC10 (activated sludge): 17 mg/l
Exposure time: 0,5 h
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209
Remarks: The value is calculated

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 44,2 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

NOEC (Poecilia reticulata (guppy)): 18 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h
Test Type: Immobilization
Method: OECD Test Guideline 202
GLP: yes

NOEC (Daphnia magna (Water flea)): 26,7 mg/l
Exposure time: 24 h
Test Type: Immobilization
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (algae)): 5,6 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (algae)): 2,1 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): 48 mg/l
Exposure time: 0,5 h
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209
GLP: yes

EC10 (activated sludge): 12 mg/l
Exposure time: 0,5 h
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209
GLP: yes

Diethylene glycol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75.200 mg/l
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes

Toxicity to fish (Chronic toxicity) : NOEC: 15.380 mg/l
Exposure time: 7 d
Species: Pimephales promelas (fathead minnow)
Remarks: Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 8.590 mg/l
Species: Ceriodaphnia dubia (water flea)
Remarks: Information taken from reference works and the literature.

Methyl ethyl ketone:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 3.220 mg/l
Exposure time: 96 h

Hydrogen peroxide solution:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 16,4 mg/l
Exposure time: 96 h
Test Type: semi-static test
Remarks: Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia pulex (Water flea)): 2,4 mg/l Exposure time: 48 h Test Type: semi-static test Remarks: Information taken from reference works and the literature.
Toxicity to algae/aquatic plants	:	ErC50 (Skeletonema costatum (marine diatom)): 1,38 mg/l Exposure time: 72 h Test Type: static test Remarks: Information taken from reference works and the literature.

Ecotoxicology Assessment

Chronic aquatic toxicity	:	Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Biodegradability	:	Result: Readily biodegradable. Method: Closed Bottle test

Diethylene glycol:

Biodegradability	:	Test Type: CO2 Evolution Test Inoculum: activated sludge, non-adapted Result: Readily biodegradable. Biodegradation: 70 - 80 % Exposure time: 28 d Method: OECD Test Guideline 301B
Biochemical Oxygen Demand (BOD)	:	Remarks: No data available

Methyl ethyl ketone:

Biodegradability	:	Result: Readily biodegradable.

Hydrogen peroxide solution:

Biochemical Oxygen Demand (BOD)	:	Remarks: No data available

12.3 Bioaccumulative potential

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane:

Bioaccumulation	:	Bioconcentration factor (BCF): 10,3 Remarks: Not expected considering the low log Pow value.
Partition coefficient: n-octanol/water	:	log Pow: < 2,04 (25 °C) Method: OECD Test Guideline 117

Diethylene glycol:

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water	:	log Pow: -1,98 (20 °C)

Methyl ethyl ketone:

Partition coefficient: n-octanol/water	:	log Pow: 0,29

Hydrogen peroxide solution:

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Components:

Diethylene glycol:

Mobility	:	Remarks: Adsorption to the solid soil particles is not expected.

Hydrogen peroxide solution:

Mobility	:	Remarks: Can be leached out from soil.
Distribution among environmental compartments	:	Remarks: Transport to air is not expected.

12.5 Results of PBT and vPvB assessment

Product:

Assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

0.1% or higher.

Components:

Diethylene glycol:

Assessment : This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic). This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

Hydrogen peroxide solution:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Components:

Hydrogen peroxide solution:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.

		Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local regulation.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not burn, or use a cutting torch on, the empty drum. Due to the high risk of contamination recycling/recovery is not recommended. Follow all warnings even after the container is emptied.

SECTION 14: Transport information

14.1 UN number or ID number

ADN	:	UN 3105
ADR	:	UN 3105
RID	:	UN 3105
IMDG	:	UN 3105
IATA	:	UN 3105

14.2 UN proper shipping name

ADN	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
ADR	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
RID	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
IMDG	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
IATA	:	Organic peroxide type D, liquid (Methyl ethyl ketone peroxide)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
ADN	:	5.2	
ADR	:	5.2	
RID	:	5.2	
IMDG	:	5.2	

IATA	:	5.2	HEAT

14.4 Packing group

ADN

Packing group	:	Not assigned by regulation
Classification Code	:	P1
Labels	:	5.2

ADR

Packing group	:	Not assigned by regulation
Classification Code	:	P1
Labels	:	5.2
Tunnel restriction code	:	(D)
Remarks	:	(TNO 19EM/0055)

RID

Packing group	:	Not assigned by regulation
Classification Code	:	P1
Hazard Identification Number	:	539
Labels	:	5.2

IMDG

Packing group	:	Not assigned by regulation
Labels	:	5.2
EmS Code	:	F-J, S-R
Remarks	:	(ILT/VV/19-5085)

IATA (Cargo)

Packing instruction (cargo aircraft)	:	570
Packing group	:	Not assigned by regulation
Labels	:	Organic Peroxides, Keep Away From Heat

IATA (Passenger)

Packing instruction (passenger aircraft)	:	570
Packing group	:	Not assigned by regulation
Labels	:	Organic Peroxides, Keep Away From Heat

14.5 Environmental hazards

ADN

Environmentally hazardous	:	no

ADR

Environmentally hazardous	:	no

RID

Environmentally hazardous	:	no

IMDG
Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EU) 2019/1148 on the marketing and use of explosives precursors		
This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.		Hydrogen peroxide solution (ANNEX I)
Fire Hazard Class	:	A II: Flash point 21 °C to 55 °C, at 15 °C not miscible in water Specially dangerous flammable liquids

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P6b	SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES

The components of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
AIIC	:	All components are listed on the inventory, regulatory obligations/restrictions apply
DSL	:	All components of this product are on the Canadian DSL
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	On the inventory, or in compliance with the inventory
TSCA	:	All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

15.2 Chemical safety assessment

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	:	A Chemical Safety Assessment has been carried out for this substance.
Diethylene glycol	:	A Chemical Safety Assessment has been carried out for this substance.
Hydrogen peroxide solution	:	A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H240	:	Heating may cause an explosion.
H271	:	May cause fire or explosion; strong oxidizer.
H302	:	Harmful if swallowed.
H314	:	Causes severe skin burns and eye damage.
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.
H412	:	Harmful to aquatic life with long lasting effects.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Org. Perox.	:	Organic peroxides
Ox. Liq.	:	Oxidizing liquids
Skin Corr.	:	Skin corrosion
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2006/15/EC	:	Europe. Indicative occupational exposure limit values
2017/164/EU	:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
AT OEL	:	Austria. Limit values regulation - Annex I: Substance list
2000/39/EC / TWA	:	Limit Value - eight hours
2000/39/EC / STEL	:	Short term exposure limit
2006/15/EC / TWA	:	Limit Value - eight hours
2017/164/EU / STEL	:	Short term exposure limit
2017/164/EU / TWA	:	Limit Value - eight hours
AT OEL / MAK-TMW	:	Time Weighted Average
AT OEL / MAK-KZW	:	Short Term Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx -

Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : This data sheet contains changes from the previous version in section(s):
Hazards identification
Composition/information on ingredients
Toxicological information

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Org. Perox. D	H242	Based on product data or assessment
Acute Tox. 4	H302	Based on product data or assessment
Acute Tox. 4	H332	Based on product data or assessment
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

AT / EN