

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519

TRIGONOX V388

Version 4

Revision Date: 2021/07/28
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Print Date: 2023/03/14

CN / EN

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Information
Trade name : TRIGONOX V388

Use of the Substance/Mixture : Specific use(s): Curing agent

Company : Nouryon Functional Chemicals B.V.
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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

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	
Form	liquid
Colour	colourless
Odour	Faint.
GB 6944/12268	
UN number	UN 3105
Proper shipping name	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
Class	5.2
Packing group	Not Assigned
Hazard Summary	
General advice	Immediate medical attention is required. Move out of dangerous area. Show this safety data sheet to the doctor in attendance.
Physical and chemical hazards	Flammable liquid and vapour. Heating may cause a fire.
Health hazards	

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Inhalation	Inhalation of aerosols may cause irritation to mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. Harmful if inhaled.
Skin	Symptoms may be delayed. May be harmful in contact with skin. Causes severe skin burns.
Eyes	Causes serious eye damage.
Ingestion	Harmful if swallowed. Causes burns.
Environmental hazards	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

GHS Classification

Flammable liquids, Category 3
Organic peroxides, Type D
Acute toxicity, Category 4, Oral
Acute toxicity, Category 4, Inhalation
Acute toxicity, Category 5, Dermal
Skin corrosion/irritation, Category 1
Serious eye damage/eye irritation, Category 1
Short-term (acute) aquatic hazard, Category 2

GHS label elements

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.
H313 May be harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H401 Toxic to aquatic life.

Precautionary statements

: **Prevention:**
P210 Keep away from heat/ sparks/ open flames/ hot surfaces.
No smoking.
P220 Keep/ Store away from clothing/ combustible materials.
P233 Keep container tightly closed.
P234 Keep only in original container.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing mist, vapours or spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye

protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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.

P312 Call a POISON CENTER/ doctor if you feel unwell.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P410 Protect from sunlight.

P420 Store away from other materials.

Physical and chemical hazards

Flammable liquid and vapour.

Heating may cause a fire.

Health hazards

Inhalation	: Inhalation of aerosols may cause irritation to mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. Harmful if inhaled.
Skin	: Symptoms may be delayed. May be harmful in contact with skin. Causes severe skin burns.
Eyes	: Causes serious eye damage.
Ingestion	: Harmful if swallowed. Causes burns.
Further information	: Solvents may degrease the skin.

Test result

Acute oral toxicity : LD50 Oral: 850 mg/kg
Species: rats
The value is calculated

Acute inhalation toxicity : LC50 (Rat): 1.85 mg/l

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

Acute dermal toxicity : LD50: 4,938 mg/kg
Species: Rabbit
Method: OECD Test Guideline 402
The value is calculated

Environmental hazards

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Other hazards

No further data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Hazardous substance

Chemical name	CAS-No.	Classification	Concentration [%]
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	1338-23-4	Org. Perox. A; H240 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 5; H313 Skin Corr./Irrit. 1; H314 Eye Dam./Irrit. 1; H318 Aquatic Acute 2; H401	35 - 45
Dimethyl phthalate	131-11-3	Aquatic Acute 3; H402	20 - 45
Diethylene glycol	111-46-6	Acute Tox. 4; H302	10 - 19
Methyl ethyl ketone	78-93-3	Flam. Liq. 2; H225 Acute Tox. 5; H303 Eye Dam./Irrit. 2A; H319 STOT SE 3; H336	3 - 7
Hydrogen peroxide solution	7722-84-1	Ox. Liq. 1; H271 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Corr./Irrit. 1A; H314 Eye Dam./Irrit. 1; H318 STOT SE 3; H335 Aquatic Acute 2; H401 Aquatic Chronic 3; H412	1 - 5

Remarks : 2-Butanone, peroxide[active oxygen content≤10%,containing≥55% type A thinner]

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. 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.

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

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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.
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.
Ingestion	: 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.
Notes to physician	
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. May be harmful in contact with skin. Causes serious eye damage. Causes severe burns.
Treatment	: Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Specific hazards during firefighting / Specific hazards arising from the chemical	: 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.
Combustion products	: Fire will produce smoke containing hazardous combustion products (see section 10). Oxygen Carbon oxides
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.

6. ACCIDENTAL RELEASE MEASURES

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.
- Emergency measures on accidental release : Evacuate personnel to safe areas.
Only qualified personnel equipped with suitable protective equipment may intervene.
Prevent unauthorised persons entering the zone.
- Environmental precautions : Prevent product from entering drains.
Discharge into the environment must be avoided.
- Methods for cleaning up /
Methods for containment : 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.
- Reference to other sections : For disposal considerations see section 13.

For personal protection see section 8.

7. HANDLING AND STORAGE

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.

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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.

Temperature class : It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded.

Storage

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.

Maximum storage temperature: : 25 °C

Other data : Maximum storage temperature is for quality only.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	1338-23-4	MAC	1.5 mg/m ³	CN OEL
	Further information: Skin			
		C	0.2 ppm	ACGIH
Methyl ethyl ketone	78-93-3	PC-TWA	300 mg/m ³	CN OEL
		PC-STEL	600 mg/m ³	CN OEL
		TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH
Hydrogen peroxide solution	7722-84-1	PC-TWA	1.5 mg/m ³	CN OEL
		TWA	1 ppm	ACGIH

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Formic acid	64-18-6	PC-TWA	10 mg/m ³	CN OEL
		PC-STEL	20 mg/m ³	CN OEL

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		TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH
Acetic acid	64-19-7	PC-TWA	10 mg/m ³	CN OEL
		PC-STEL	20 mg/m ³	CN OEL
		TWA	10 ppm	ACGIH
		STEL	15 ppm	ACGIH
Propionic acid	79-09-4	PC-TWA	30 mg/m ³	CN OEL
		TWA	10 ppm	ACGIH
Methyl ethyl ketone	78-93-3	PC-TWA	300 mg/m ³	CN OEL
		PC-STEL	600 mg/m ³	CN OEL
		TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH

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

- Respiratory protection : In the case of vapour or aerosol formation use a respirator with an approved filter.
Filter A
- Eye/face protection : Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Protective suit
- Hand protection
- Material : Neoprene
- Material : Nitrile rubber
- Remarks : Breakthrough time is not determined for the product. Change gloves often!
- Material : butyl-rubber
- Break through time : >= 480 min
- Glove thickness : 0.5 mm
- Remarks : 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.
- 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.

Environmental exposure controls

General advice : Prevent product from entering drains.

Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	Faint.
Odour Threshold	:	No data available
pH	:	Not applicable
Melting point	:	≤ -10 °C
Boiling point/boiling range	:	Decomposes below the boiling point.
Flash point	:	37 °C Method: closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Decomposition products may be flammable.
Self-ignition	:	Test method not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	not determined
Relative vapour density	:	No data available
Relative density	:	1.12 (20 °C)
Bulk density	:	Not applicable
Solubility(ies)		
Water solubility	:	partly miscible (20 °C)
Solubility in other solvents	:	(20 °C) Miscible with:, Phthalates
Partition coefficient: n-octanol/water	:	No data available
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) : 55 °C

Viscosity

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Active Oxygen Content : 9.8 - 10.0 %

Organic peroxides : 36 - 50 %

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

10. STABILITY AND REACTIVITY

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

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.

Hazardous decomposition products : Formic acid
Acetic acid
Propionic 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.
Reactivity	: Stable under normal conditions.
Chemical stability	: Stable under recommended storage conditions.
Hazardous reactions	: No dangerous reaction known under conditions of normal use.
Self-Accelerating decomposition temperature (SADT)	: 55 °C

11. TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION:

Hazard Summary

Acute toxicity	: Harmful if swallowed or if inhaled. May be harmful in contact with skin.
Skin corrosion/irritation	: Causes severe burns.
Serious eye damage/eye irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Respiratory sensitisation: Not classified based on available information. Skin sensitisation: Not classified based on available information.
Germ cell mutagenicity	: Not classified based on available information.
Carcinogenicity	: Not classified based on available information.
Reproductive toxicity	: Not classified based on available information.
STOT - single exposure	: Not classified based on available information.
STOT - repeated exposure	: Not classified based on available information.
Aspiration hazard	: Not classified based on available information.
Potential Health Effects	
Inhalation	: Inhalation of aerosols may cause irritation to mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. Harmful if inhaled.

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Skin	: Symptoms may be delayed. May be harmful in contact with skin. Causes severe skin burns.
Eyes	: Causes serious eye damage.
Ingestion	: Harmful if swallowed. Causes burns.
Aggravated Medical Condition	: None known.
Symptoms of Overexposure	: The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Toxicology Assessment

Further information : Solvents may degrease the skin.

Test result

Acute oral toxicity	: LD50 Oral: 850 mg/kg Species: rats The value is calculated
Acute inhalation toxicity	: LC50 (Rat): 1.85 mg/l Exposure time: 4 h Test atmosphere: dust/mist The value is calculated
Acute dermal toxicity	: LD50: 4,938 mg/kg Species: Rabbit Method: OECD Test Guideline 402 The value is calculated

Component: Dimethyl phthalate

Further information : No further data available.

Component: Hydrogen peroxide solution

Further information : No further data available.

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

Acute oral toxicity	: LD50: 1,017 mg/kg Species: Rat
Acute inhalation toxicity	: LC50 (Rat): 1.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	: LD50: 4,000 mg/kg Species: Rat
Skin irritation	: Result: Causes burns.

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- Eye irritation : Result: Risk of serious damage to eyes.
- Germ cell mutagenicity
Genotoxicity in vitro : Ames test
Result: negative
- Genotoxicity in vivo : Not classified due to data which are conclusive although insufficient for classification.
- Carcinogenicity : No data available
- Reproductive toxicity/Fertility : Species: Rat, male and female
Application Route: Oral
Dose: 0 25, 50, 75 milligram per kilogram
General Toxicity - Parent: No observed adverse effect level:
50 mg/kg bw/day
General Toxicity F1: No observed adverse effect level F1: 50
mg/kg bw/day
Fertility: No observed adverse effect level Parent: 75 mg/kg
bw/day
Method: OECD Test Guideline 421
GLP: yes
- Target Organ Systemic
Toxicant - Repeated
exposure : The substance or mixture is not classified as specific target
organ toxicant, repeated exposure.
- Aspiration toxicity : No aspiration toxicity classification

Component: Dimethyl phthalate

- Acute oral toxicity : LD50: > 5,000 mg/kg
Species: Rat
- Acute inhalation toxicity : Assessment: The substance or mixture has no acute
inhalation toxicity
- Acute dermal toxicity : LD50: > 10,000 mg/kg
Species: Rabbit
- Skin irritation : Result: slight irritation
- Eye irritation : Result: Slightly irritating to eyes.
- Aspiration toxicity : No aspiration toxicity classification

Component: Diethylene glycol

- Acute oral toxicity : LD50 Oral: > 300 - 2,000 mg/kg
Species: Rat
- Skin irritation : Species: Rabbit
Result: No skin irritation

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	Method: Draize Test Exposure time: 23 h Information taken from reference works and the literature.
Eye irritation	: Species: Rabbit Result: No eye irritation Exposure time: 24 h Information taken from reference works and the literature.
Sensitisation	: Maximisation Test Species: Guinea pig Result: Does not cause skin sensitisation. Method: Regulation (EC) No. 440/2008, Annex, B.6
Repeated dose toxicity	: 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
Reproductive toxicity/Fertility	: Test Type: Two-generation study Species: Mouse, male and female Application Route: Oral General Toxicity - Parent: No observed adverse effect level: 3,060 mg/kg bw/day
Reproductive toxicity/Development/Teratogenicity	: Test Type: Pre-natal Species: Rabbit Application Route: Oral General Toxicity Maternal: No observed adverse effect level: 1,000 mg/kg bw/day Method: OECD Test Guideline 414 GLP: yes
<u>Component: Methyl ethyl ketone</u>	
Acute oral toxicity	: LD50: 2,737 mg/kg Species: Rat
Acute dermal toxicity	: LD50: 6,480 mg/kg Species: Rabbit
Skin irritation	: Result: Repeated exposure may cause skin dryness or cracking. Moderately irritating.
Eye irritation	: Result: Irritating to eyes.
Target Organ Systemic Toxicant - Single exposure	: Exposure routes: Inhalation The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

Aspiration toxicity : No aspiration toxicity classification

Component: Hydrogen peroxide solution

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

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 dermal toxicity : LD50 Dermal: > 5,000 mg/kg
Species: Rabbit
Information taken from reference works and the literature.

Skin irritation : Result: Causes severe burns.

Germ cell mutagenicity
Genotoxicity in vivo : Species: Mouse
Method: Mutagenicity (micronucleus test)
Result: negative
Information taken from reference works and the literature.

12. ECOLOGICAL INFORMATION

PRODUCT INFORMATION:

Ecotoxicology Assessment

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

Test result

Ecotoxicity effects

Toxicity to fish : LC50: 54.6 mg/l
Exposure time: 96 h
Species: *Poecilia reticulata* (guppy)
Test Type: semi-static test
The value is calculated

Toxicity to daphnia and other aquatic invertebrates : 48 mg/l
Exposure time: 48 h
Species: *Daphnia magna* (Water flea)
Test Type: Immobilization

	The value is calculated
Toxicity to algae	: ErC50: 6.9 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (algae) Test Type: Growth inhibition The value is calculated
Toxicity to bacteria	: EC10: 15 mg/l Exposure time: 0.5 h Species: activated sludge Test Type: Respiration inhibition Method: Domestic OECD Guideline 209

Component: Dimethyl phthalate

Short-term (acute) aquatic hazard	: Harmful to aquatic life.
Additional ecological information	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Component: Hydrogen peroxide solution

Long-term (chronic) aquatic hazard	: Harmful to aquatic life with long lasting effects.
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.

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

Ecotoxicity effects

Toxicity to fish	: LC50: 44.2 mg/l Exposure time: 96 h Species: Poecilia reticulata (guppy) Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	: 39 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Test Type: Immobilization
Toxicity to algae	: ErC50: 5.6 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (algae) Test Type: Growth inhibition
Toxicity to bacteria	: EC10: 12 mg/l Exposure time: 0.5 h Species: activated sludge Test Type: Respiration inhibition Method: Domestic OECD Guideline 209

Elimination information (persistence and degradability)

Bioaccumulation : Bioconcentration factor (BCF): 10.3
Not expected considering the low log Pow value.

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

Component: Dimethyl phthalate**Ecotoxicity effects**

Toxicity to fish : LC50: 420 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to algae : EC10: 193.09 mg/l
Exposure time: 72 h
Species: Desmodesmus subspicatus (green algae)
Test Type: Growth inhibition
Method: OECD Test Guideline 201

ErC50: 259.76 mg/l
Exposure time: 72 h
Species: Desmodesmus subspicatus (green algae)
Test Type: Growth inhibition
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC: 11 mg/l
Exposure time: 102 d
Species: Oncorhynchus mykiss (rainbow trout)
Test Type: flow-through test
Method: Other guidelines

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 9.6 mg/l
Exposure time: 21 d
reproduction rate
Species: Daphnia magna (Water flea)
Method: Other guidelines

Elimination information (persistence and degradability)

Bioaccumulation : Species: Fish
Exposure time: 1 d
Bioconcentration factor (BCF): 5.4

Biodegradability : Result: Readily biodegradable.
Biodegradation: 93 - 98 %

Component: Diethylene glycol**Ecotoxicity effects**

Toxicity to fish : LC50: 75,200 mg/l
Exposure time: 96 h

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Species: Pimephales promelas (fathead minnow)
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)
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)
Information taken from reference works and the literature.

Elimination information (persistence and degradability)

Bioaccumulation : Bioaccumulation is unlikely.

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

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

Further information on ecology

Biochemical Oxygen Demand (BOD) : No data available

Component: Methyl ethyl ketone

Ecotoxicity effects

Toxicity to fish : LC50: 3,220 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Elimination information (persistence and degradability)

Biodegradability : Result: Readily biodegradable.

Component: Hydrogen peroxide solution

Ecotoxicity effects

Toxicity to fish : LC50: 16.4 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
Test Type: semi-static test
Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates : LC50: 2.4 mg/l
Exposure time: 48 h

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Species: *Daphnia pulex* (Water flea)
Test Type: semi-static test
Information taken from reference works and the literature.

Toxicity to algae : ErC50: 1.38 mg/l
Exposure time: 72 h
Species: *Skeletonema costatum* (marine diatom)
Test Type: static test
Information taken from reference works and the literature.

Elimination information (persistence and degradability)

Bioaccumulation : Bioaccumulation is unlikely.

Mobility : Can be leached out from soil.

Distribution among environmental compartments : Remarks: Transport to air is not expected.

Further information on ecology

Biochemical Oxygen Demand (BOD) : No data available

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 3105
Proper shipping name : Organic peroxide type D, liquid
(Methyl ethyl ketone peroxide)
Class : 5.2
Subsidiary risk : HEAT
Packing group : Not Assigned
Labels : 5.2 (HEAT)
Packing instruction (cargo) : 570

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aircraft)
Packing instruction : 570
(passenger aircraft)
Environmentally hazardous : no

IMDG-Code

UN number : UN 3105
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
(Methyl ethyl ketone peroxide)
Class : 5.2
Packing group : Not Assigned
Labels : 5.2
EmS Code : F-J, S-R
Marine pollutant : no
Remarks : (ILT/VV/19-5085)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

GB 6944/12268

UN number : UN 3105
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
(Methyl ethyl ketone peroxide)
Class : 5.2
Packing group : Not Assigned
Labels : 5.2
Environmentally hazardous : no

15. REGULATORY INFORMATION

Notification status

TCSI : YES. On the inventory, or in compliance with the inventory
AIIC : YES. On the inventory, or in compliance with the inventory
DSL : YES. All components of this product are on the Canadian DSL
ENCS : YES. On the inventory, or in compliance with the inventory
ISHL : YES. On the inventory, or in compliance with the inventory
KECI : YES. On the inventory, or in compliance with the inventory
PICCS : YES. On the inventory, or in compliance with the inventory
IECSC : YES. On the inventory, or in compliance with the inventory
NZIoC : YES. On the inventory, or in compliance with the inventory
TSCA : YES. All chemical substances in this product are either listed on the
TSCA Inventory or in compliance with a TSCA Inventory exemption.

For explanation of abbreviation see section 16.

National regulatory information

Hazardous Chemicals for Priority Management under SAWS : Not applicable

China Severely Restricted Toxic Chemicals for Import and Export : Not applicable

Catalogue of Hazardous Chemicals : Listed

Further information

Law on the Prevention and Control of Occupational Diseases

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.
H303	: May be harmful if swallowed.
H313	: May be harmful in contact with skin.
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.
H401	: Toxic to aquatic life.
H402	: Harmful to aquatic life.
H412	: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
CN OEL	: Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
ACGIH / C	: Ceiling limit
CN OEL / PC-TWA	: Permissible concentration - time weighted average
CN OEL / PC-STEL	: Permissible concentration - short term exposure limit
CN OEL / MAC	: Maximum allowable concentration

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); EC_x - Concentration associated with x% response; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC_x - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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;

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REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

This data sheet contains changes from the previous version in section(s):

Hazards identification

Composition/information on ingredients

Handling and storage

Toxicological information

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.
