

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519

TRIGONOX 249

Version 2.0 Revision Date: 2023/07/01 CN / EN Date of last issue: 2022/01/18
Date of first issue: 2022/01/18

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TRIGONOX 249
:

Manufacturer or supplier's details

Company : Tianjin Nouryon Peroxides Co., Ltd
No.31, Fugang Road, Nangang Industrial Zone, TEDA
CN 300280 Tianjin
China

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79211<(>,<)> China National Registration Center for
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6550<(>,<)>

E-mail address : polymer.apac@nouryon.com

Recommended use of the chemical and restrictions on use

Recommended use : Curing agent

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance : clear
Colour : colourless
Odour : Faint.

Heating may cause a fire. Harmful if swallowed, in contact with skin or if inhaled. Causes severe skin burns and eye damage. May cause cancer. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

GHS Classification

Organic peroxides : Type D

Acute toxicity (Oral) : Category 4

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Acute toxicity (Inhalation)	: Category 4
Acute toxicity (Dermal)	: Category 4
Skin corrosion/irritation	: Category 1
Serious eye damage/eye irritation	: Category 1
Carcinogenicity	: Category 1B
Specific target organ toxicity - repeated exposure	: Category 2
Short-term (acute) aquatic hazard	: Category 2
Long-term (chronic) aquatic hazard	: Category 3

GHS label elements

Hazard pictograms	: 
Signal word	: Danger
Hazard statements	: H242 Heating may cause a fire. H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled. H314 Causes severe skin burns and eye damage. H350 May cause cancer. H373 May cause damage to organs through prolonged or repeated exposure. H401 Toxic to aquatic life. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	: Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/ sparks/ open flames/ hot surfaces.

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No smoking.
 P220 Keep/ Store away from clothing/ combustible materials.
 P234 Keep only in original container.
 P235 Keep cool.
 P260 Do not breathe mist or vapours.
 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.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Storage:

P405 Store locked up.
 P410 Protect from sunlight.
 P420 Store away from other materials.

Disposal:

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

Physical and chemical hazards

Heating may cause a fire.

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Health hazards

Harmful if swallowed. Harmful if inhaled. Harmful in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. May cause cancer. May cause damage to organs through prolonged or repeated exposure.

Environmental hazards

Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Dimethyl phthalate	131-11-3	>= 40 -<= 60
Methyl ethyl ketone peroxide	1338-23-4	>= 20 -<= 25
Cumyl hydroperoxide	80-15-9	>= 20 -<= 24
2-Phenylisopropanol	617-94-7	>= 1 -<= 3
Cumene	98-82-8	>= 0.1 -<= 2
Dicumyl peroxide	80-43-3	< 0.2

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.
- 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.
If skin irritation persists, call a physician.
- In case of eye contact : Rinse with plenty of water.
Get medical attention immediately. Continue to rinse during transport.
Remove contact lenses.

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- 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.
- Most important symptoms and effects, both acute and delayed : The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.
Harmful if swallowed, in contact with skin or if inhaled.
Causes serious eye damage.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.
Causes severe burns.
- Notes to physician : Treat symptomatically.

5. FIREFIGHTING MEASURES

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

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be disposed of in accordance with local regulations.

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

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : 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.
- Environmental precautions : Prevent product from entering drains.
Discharge into the environment must be avoided.
- Methods and materials for containment and 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.
- Prevention of secondary hazards : Evacuate personnel to safe areas.
Only qualified personnel equipped with suitable protective equipment may intervene.
Prevent unauthorised persons entering the zone.

7. HANDLING AND STORAGE

Handling

- Advice on protection against fire and explosion : Use explosion protected equipment.
Keep away from sources of ignition - No smoking.
No sparking tools should be used.
Keep away from reducing agents (e.g. amines), acids, alkalis and heavy metal compounds (e.g. accelerators, driers, metal soaps).
Do not cut or weld on or near this container even when empty.
Keep away from combustible material.

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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.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.
Obtain special instructions before use.

Avoidance of contact : 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.

Storage

Conditions for safe storage : Prevent unauthorized access.
No smoking.
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 : Maximum storage temperature is for quality only.

Maximum storage temperature: : 25 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

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Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methyl ethyl ketone peroxide	1338-23-4	MAC	1.5 mg/m ³	CN OEL
	Further information: Skin			
		C	0.2 ppm	ACGIH

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Acetophenone	98-86-2	TWA	10 ppm	ACGIH
Formic acid	64-18-6	PC-TWA	10 mg/m ³	CN OEL
		PC-STEL	20 mg/m ³	CN OEL
		TWA	5 ppm	ACGIH
Organic acid	64-19-7	STEL	10 ppm	ACGIH
		PC-TWA	10 mg/m ³	CN OEL
		PC-STEL	20 mg/m ³	CN OEL
Fatty acid	79-09-4	TWA	10 ppm	ACGIH
		TWA	10 ppm	ACGIH
		STEL	15 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

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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

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : clear

Colour : colourless

Odour : Faint.

Odour Threshold : No data available

pH : Not applicable

Melting point : No data available

Boiling point/boiling range : Decomposes below the boiling point.

Flash point : Above the SADT value No flash point was obtained, but the product may release flammable vapour.

Evaporation rate : No data available

Flammability (liquids) : Decomposition products may be flammable.

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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	:	1.14 (20 °C)
Bulk density	:	Not applicable
Solubility(ies)		
Water solubility	:	partly miscible (20 °C)
Solubility in other solvents	:	(20 °C) Description: Miscible with:, Phthalates
Partition coefficient: n-octanol/water	:	No data available
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)	:	60 °C
Viscosity		
Viscosity, dynamic	:	24.9 mPa.s (20 °C)
Viscosity, kinematic	:	21.84 mm ² /s (20 °C)
Explosive properties	:	Not explosive

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Oxidizing properties : Not classified as oxidising.

Active Oxygen Content : 8.3 - 8.6 %

10. STABILITY AND REACTIVITY

Reactivity : Stable under normal conditions.

Chemical stability : Stable under recommended storage conditions.

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

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

Incompatible materials : 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 : No decomposition if stored and applied as directed.

Hazardous decomposition products : Carbon oxides
Acetophenone
Methane
2-Phenylisopropanol
Formic acid
Organic acid
Fatty acid
Methyl ethyl ketone

Thermal decomposition : SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition

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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) : 60 °C

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed, in contact with skin or if inhaled.

Product:

Acute oral toxicity : LD50 (Rat): 727 mg/kg
Remarks: The value is calculated

Acute inhalation toxicity : LC50 (Rat): 1.01 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: The value is calculated

Acute dermal toxicity : LD50: 1,915 mg/kg
Remarks: The value is calculated

Components:

Dimethyl phthalate:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

Methyl ethyl ketone peroxide:

Acute oral toxicity : LD50 (Rat, male): 1,017 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): 1.5 mg/l
Exposure time: 4 h

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Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: no

Acute dermal toxicity : LD50 (Rabbit, male and female): 4,000 mg/kg
Method: OECD Test Guideline 402

Cumyl hydroperoxide:

Acute oral toxicity : LD50 Oral (Rat, male): 382 mg/kg

Acute inhalation toxicity : LC50: 1.370 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rat): 1,200 - 1,520 mg/kg
LD50 (Rabbit): 134 mg/kg

2-Phenylisopropanol:

Acute oral toxicity : LD50 (Rat): 1,300 mg/kg
Remarks: Information taken from reference works and the literature.

Cumene:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Dicumyl peroxide:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes severe burns.

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Components:

Dimethyl phthalate:

Result : slight irritation

Methyl ethyl ketone peroxide:

Result : Causes burns.

Cumyl hydroperoxide:

Species : Rabbit
Assessment : Category 1B
Result : Causes burns.

2-Phenylisopropanol:

Assessment : Irritating to skin.
Remarks : Information taken from reference works and the literature.

Dicumyl peroxide:

Assessment : Irritating to skin.
Remarks : Irritating to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Dimethyl phthalate:

Result : Slightly irritating to eyes.

Methyl ethyl ketone peroxide:

Result : Risk of serious damage to eyes.

Cumyl hydroperoxide:

Assessment : Causes severe skin burns and eye damage.

2-Phenylisopropanol:

Assessment : Irritating to eyes.
Remarks : Information taken from reference works and the literature.

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Dicumyl peroxide:

Assessment : Mild eye irritation
Remarks : Causes eye irritation.

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:

Assessment : Does not cause skin sensitisation.

Cumyl hydroperoxide:

Result : Not sensitizing.

Dicumyl peroxide:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : Not a skin sensitizer.

Germ cell mutagenicity

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide:

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.

Cumyl hydroperoxide:

Genotoxicity in vitro : Result: Evidence of genotoxic effects in vitro.

Genotoxicity in vivo : Result: No evidence of genotoxic effects in vivo.

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Germ cell mutagenicity - Assessment : Not mutagenic.

Cumene:

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

Test Type: unscheduled DNA synthesis assay
 Test system: rat hepatocytes
 Metabolic activation: no
 Method: OECD Test Guideline 482
 Result: negative
 GLP: yes

Test Type: Chromosome aberration test in vitro
 Test system: Chinese hamster ovary cells
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative
 GLP: yes

Test Type: In vitro gene mutation study in mammalian cells
 Test system: Chinese hamster ovary cells
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative
 GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test
 Species: Mouse (male and female)
 Application Route: inhalation (gas)
 Method: OECD Test Guideline 474
 Result: negative
 GLP: yes

Test Type: Micronucleus test
 Species: Rat (male)
 Application Route: Intraperitoneal
 Method: OECD Test Guideline 474
 Result: Ambiguous results
 GLP: yes

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Dicumyl peroxide:

Genotoxicity in vitro : Test Type: reverse mutation assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro cytogenicity study in mammalian cells
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity

May cause cancer.

Components:

Methyl ethyl ketone peroxide:

Remarks : No data available

Cumyl hydroperoxide:

Remarks : No data available

Cumene:

Species : Rat, male and female
Application Route : inhalation (vapour)
Activity duration : 6 hrs
Result : carcinogenic effects
Symptoms : adenocarcinoma, kidney tumors

Species : Mouse, male and female
Application Route : inhalation (vapour)
Activity duration : 6 hrs
Result : carcinogenic effects
Symptoms : adenocarcinoma

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Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide:

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

Cumene:

Effects on fertility : Species: Rat, male
Application Route: inhalation (vapour)
General Toxicity - Parent: NOAEL: >= 1,200 ppm
GLP: yes

Effects on foetal development : Species: Rat, male and female
Application Route: inhalation (vapour)
General Toxicity Maternal: NOAEL: 100 ppm
Developmental Toxicity: NOAEL: > 1,200 ppm
Method: OECD Test Guideline 414
GLP: yes

Species: Rabbit, male and female
Application Route: inhalation (vapour)
General Toxicity Maternal: LOAEL: 500 ppm
Developmental Toxicity: NOAEL: 2,300 ppm
Method: OECD Test Guideline 414
GLP: yes

Dicumyl peroxide:

Effects on foetal development : Species: Rat
General Toxicity Maternal: NOAEL: 150 mg/kg bw/day
Developmental Toxicity: NOAEL: 150 mg/kg bw/day
Method: OECD Test Guideline 414
Remarks: Adverse developmental effects were observed

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Species: Rabbit
 General Toxicity Maternal: NOAEL: 50 mg/kg bw/day
 Developmental Toxicity: NOAEL: 150 mg/kg bw/day
 Method: OECD Test Guideline 414
 Remarks: No significant adverse effects were reported

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

Not classified based on available information.

Components:

Methyl ethyl ketone peroxide:

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

Cumene:

Exposure routes : Inhalation
 Assessment : May cause respiratory irritation.

Dicumyl peroxide:

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

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Components:

Methyl ethyl ketone peroxide:

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

Cumyl hydroperoxide:

Exposure routes : Inhalation
 Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Dicumyl peroxide:

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

Repeated dose toxicity

Components:

Dicumyl peroxide:

Species : Rat
NOAEL : 80 mg/kg bw/day
Method : OECD Test Guideline 408

Aspiration toxicity

Not classified based on available information.

Components:

Dimethyl phthalate:

No aspiration toxicity classification

Methyl ethyl ketone peroxide:

No aspiration toxicity classification

Cumene:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks : No further data available.

Remarks : No further data available.

Components:

Dimethyl phthalate:

Remarks : No further data available.

Cumyl hydroperoxide:

Remarks : May cause damage to organs through prolonged or repeated exposure.

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Cumene:

Remarks : Solvents may degrease the skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Dimethyl phthalate:

- Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 420 mg/l
Exposure time: 96 h
- Toxicity to algae/aquatic plants : EC10 (Desmodesmus subspicatus (green algae)): 193.09 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
- ErC50 (Desmodesmus subspicatus (green algae)): 259.76 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 11 mg/l
Exposure time: 102 d
Test Type: flow-through test
Method: Other guidelines
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 9.6 mg/l
End point: reproduction rate
Exposure time: 21 d
Method: Other guidelines

Ecotoxicology Assessment

Acute aquatic toxicity : Harmful to aquatic life.

Methyl ethyl ketone peroxide:

- 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

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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

Cumyl hydroperoxide:

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Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 3.9 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 : NOEC (Daphnia (water flea)): 9.15 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

EC50 (Daphnia (water flea)): 18.84 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 3.1 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): 1.0 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : Toxicity Threshold (EC3) (Pseudomonas putida): > 50 mg/l
Exposure time: 16 h
Test Type: Growth inhibition

2-Phenylisopropanol:

Toxicity to fish : LC50 (Fish): Remarks: No data available

Cumene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4.8 mg/l
Exposure time: 96 h

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Test Type: flow-through test

LC50 (Cyprinodon variegatus (sheepshead minnow)): 4.7 mg/l
Exposure time: 96 h
Test Type: flow-through test

NOEC (Fish): 0.38 mg/l
Exposure time: 28 d
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.14 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

EC50 (Mysidopsis bahia (opossum shrimp)): 1.2 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 2.01 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): 1.49 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.35 mg/l
Exposure time: 21 d
Test Type: static test
Method: OECD Test Guideline 211
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): > 2,000 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition
Method: OECD Test Guideline 209

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GLP: yes

Dicumyl peroxide:

Toxicity to fish : LC50 (*Oryzias latipes* (Japanese medaka)): 0.469 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 0.397 mg/l
Exposure time: 48 h
Test Type: semi-static test
Method: OECD Test Guideline 202
GLP: yes
Remarks: No toxicity at the limit of solubility

Toxicity to algae/aquatic plants : (*Pseudokirchneriella subcapitata* (green algae)): Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 0.117 mg/l
End point: reproduction rate
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

Toxicity to microorganisms : NOEC (activated sludge): > 1,000 mg/l
Exposure time: 0.5 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

Persistence and degradability

Components:

Dimethyl phthalate:

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

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Methyl ethyl ketone peroxide:

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

Cumyl hydroperoxide:

Biodegradability : Result: Not readily biodegradable.

Cumene:

Biodegradability : anaerobic
Inoculum: activated sludge, non-adapted
Result: Not biodegradable

aerobic
Inoculum: Domestic sewage, non-adapted
Result: Readily biodegradable.

Dicumyl peroxide:

Biodegradability : Ready biodegradability
Inoculum: Activated sludge, domestic, non-adapted
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 44 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

Bioaccumulative potential

Components:

Dimethyl phthalate:

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

Partition coefficient: n-octanol/water : log Pow: 2.12

Methyl ethyl ketone peroxide:

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

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Partition coefficient: n-octanol/water : log Pow: < 2.04 (25 °C)
Method: OECD Test Guideline 117

Cumyl hydroperoxide:

Bioaccumulation : Bioconcentration factor (BCF): < 1

Partition coefficient: n-octanol/water : Pow: 39.8 (20 °C)

Dicumyl peroxide:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 137 - 1,470
Exposure time: 56 d
Temperature: 25 °C
Concentration: 0.01 mg/l
Method: OECD Test Guideline 305C

Mobility in soil

No data available

Other adverse effects

Product:

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

Components:

Dimethyl phthalate:

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

Cumyl hydroperoxide:

Results of PBT and vPvB assessment : Not classified as PBT or vPvB

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

Cumene:

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Results of PBT and vPvB 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)

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

Dicumyl peroxide:

Results of PBT and vPvB assessment : Not classified as PBT or vPvB

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : 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

UNRTDG

UN number : UN 3105
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
(Methyl ethyl ketone peroxide, 23%, Cumyl hydroperoxide, 22%)
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2
Environmentally hazardous : no

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IATA-DGR

UN/ID No. : UN 3105
 Proper shipping name : Organic peroxide type D, liquid
 (Methyl ethyl ketone peroxide, 23%, Cumyl hydroperoxide,
 22%)
 Class : 5.2
 Packing group : Not assigned by regulation
 Labels : Organic Peroxides, Keep Away From Heat
 Packing instruction (cargo : 570
 aircraft)
 Packing instruction : 570
 (passenger aircraft)

IMDG-Code

UN number : UN 3105
 Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
 (Methyl ethyl ketone peroxide, 23%, Cumyl hydroperoxide,
 22%)
 Class : 5.2
 Packing group : Not assigned by regulation
 Labels : 5.2
 EmS Code : F-J, S-R
 Marine pollutant : no

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, 23%, Cumyl hydroperoxide,
 22%)
 Class : 5.2
 Packing group : Not assigned by regulation
 Labels : 5.2
 Marine pollutant : no

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.

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15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

No. / Code	Chemical name / Category	Threshold quantity
W7.2	Organic peroxides	50 t

Yangtze River Protection Law

This product does not contain any dangerous chemicals prohibited for inland river transport.

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

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA 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

16. OTHER INFORMATION

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Further information

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

Date format : yyyy/mm/dd

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); 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; 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

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Relationship; 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; TECI - Thailand Existing Chemicals Inventory; 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

Disclaimer

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.

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