SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

NOROX®MEC

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/24
2.3	2024/04/22	600000000092	Date of first issue: 2017/08/24

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	NOROX®MEC
Chemical nature	:	Organic Peroxide Liquid mixture

Manufacturer or supplier's details

Company	:	United Initiators (Shanghai) Co., Ltd
Address	:	Room 501, Bldg. 1, No. 1 Shangda Road Shanghai, China, 200444
Telephone	:	+86 21 61172758
Emergency telephone number	:	+86 21 61172758
E-mail address	:	cs-initiators.cn@united-in.com

Recommended use of the chemical and restrictions on use

Recommended use	:	polymerisation initiators

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	:	liquid
Colour	:	colourless
Odour	:	very faint, mint-like

Combustible liquid. Heating may cause a fire. Harmful if swallowed. Causes severe skin burns and eye damage. May be harmful if inhaled. Suspected of damaging fertility or the unborn child. Toxic to aquatic life.

GHS Classification

Flammable liquids	:	Category 4
Organic peroxides	:	Type D
Acute toxicity (Oral)	:	Category 4
Acute toxicity (Inhalation)	:	Category 5
Skin corrosion/irritation	:	Category 1B

Serious eye damage/eye irritation	:	Category 1
Reproductive toxicity	:	Category 2
Short-term (acute) aquatic hazard	:	Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements :
H227 Combustible liquid.
H242 Heating may cause a fire.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H333 May be harmful if inhaled.
H361 Suspected of damaging fertility or the unborn child.
H401 Toxic to aquatic life.

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. No smoking.
P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials.
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
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.
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:

P405 Store locked up.
P410 Protect from sunlight.
P411 + P235 Store at temperatures not exceeding < 86 °F/ < 30 °C. Keep cool.
P420 Store away from other materials.

Disposal:

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

Physical and chemical hazards

Combustible liquid. Heating may cause a fire.

Health hazards

Harmful if swallowed. May be harmful if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. Suspected of damaging fertility or the unborn child.

Environmental hazards

Toxic to aquatic life.

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 -< 45
2-Butanone, peroxide	1338-23-4	>= 25 -< 30
Trimethylpentanediol isobutyrate	6846-50-0	>= 20 -< 25
cyclohexanone, peroxide	12262-58-7	>= 10 -< 15
Butanone	78-93-3	>= 1 -< 5
hydrogen peroxide	7722-84-1	>= 1 -< 2.5

4. FIRST AID MEASURES

General advice	:	Take off contaminated clothing and shoes immediately. Call a physician immediately. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice. Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended. Symptoms of poisoning may appear several hours later.
If inhaled	:	Administer oxygen if breathing is difficult or cyanosis is observed. Call a physician immediately. If breathed in, move person into fresh air. If not breathing, give artificial respiration. Respiratory tract burning possible if aerosols are inhaled. Call a physician or poison control centre immediately. If unconscious, place in recovery position and seek medical advice. Keep respiratory tract clear.
In case of skin contact	:	If symptoms persist, call a physician. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before re-use. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Call a physician immediately. Rinse mouth thoroughly with water. Keep respiratory tract clear. Do NOT induce vomiting. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed	:	Harmful if swallowed. Causes serious eye damage. May be harmful if inhaled. Suspected of damaging fertility or the unborn child. Causes severe burns.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing
Notes to physician	:	Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray jet Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire-fighting	:	Risk of explosion if heated under confinement. Possible emission of gaseous decomposition products may lead to a dangerous pressure build-up. Avoid confinement. Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite. The product burns violently. Flash back possible over considerable distance. Do not allow run-off from fire fighting to enter drains or water courses. Vapours may form explosive mixtures with air. Cool closed containers exposed to fire with water spray.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use a water spray to cool fully closed 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. Do not use a solid water stream as it may scatter and spread fire. Remove undamaged containers from fire area if it is safe to do so. Use water spray to cool unopened containers.
Special protective equipment	:	Wear self-contained breathing apparatus for firefighting if nec-

for firefighters	essary. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Follow safe handling advice and personal protective equipment recommendations. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contact with incompatible substances can cause decomposition at or below SADT. Clear spills immediately. Suppress (knock down) gases/vapours/mists with a water spray jet. To clean the floor and all objects contaminated by this material, use plenty of water. Soak up with inert absorbent material. Isolate waste and do not reuse. Non-sparking tools should be used. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Prevention of secondary hazards	:	Never return spills in original containers for re-use. Treat recovered material as described in the section "Disposal considerations".

7. HANDLING AND STORAGE

Handling

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Advice on protection against fire and explosion	:	Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from heat and sources of ignition. Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Keep away from combustible material.
Do not spray on a naked flame or any incandescent material.

Advice on safe handling : Open drum carefully as content may be under pressure.
Protect from contamination.
Do not swallow.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Avoid formation of aerosol.
Take precautionary measures against static discharges.
Never return any product to the container from which it was originally removed.
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid confinement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Smoking, eating and drinking should be prohibited in the application area.
Wash thoroughly after handling.
For personal protection see section 8.

Avoidance of contact : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Storage

Conditions for safe storage : Store in original container.
Keep containers tightly closed in a cool, well-ventilated place.
Store in cool place.
Keep in a well-ventilated place.
Contamination may result in dangerous pressure increases - closed containers may rupture.
Observe label precautions.
Store in accordance with the particular national regulations.
Avoid impurities (e.g. rust, dust, ash), risk of decomposition.
Electrical installations / working materials must comply with the technological safety standards.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Materials to avoid : Keep away from combustible materials.
Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Recommended storage temperature : < 30 °C

Further information on storage stability : Stable under recommended storage conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
dimethyl phthalate	131-11-3	TWA	5 mg/m3	ACGIH
2-Butanone, peroxide	1338-23-4	MAC	1.5 mg/m3	CN OEL
	Further information: Skin			
		C	0.2 ppm	ACGIH
Butanone	78-93-3	PC-TWA	300 mg/m3	CN OEL
		PC-STEL	600 mg/m3	CN OEL
		TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH
hydrogen peroxide	7722-84-1	PC-TWA	1.5 mg/m3	CN OEL
		TWA	1 ppm	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Butanone	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI

Engineering measures : Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : ABEK-filter

Eye/face protection : Ensure that eyewash stations and safety showers are close to the workstation location.
Please follow all applicable local/national requirements when selecting protective measures for a specific workplace.
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
Tightly fitting safety goggles
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.

Skin and body protection	:	Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Wear as appropriate: Flame retardant antistatic protective clothing.
Hand protection		
Material	:	butyl-rubber
Break through time	:	480 min
Glove thickness	:	0.5 mm
Material	:	Nitrile rubber
Break through time	:	< 30 min
Glove thickness	:	0.4 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. Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
Protective measures	:	The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. Keep away from food and drink. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid

Colour	:	colourless
Odour	:	very faint, mint-like
pH	:	Not applicable
Melting point/range	:	No data available
Boiling point/boiling range	:	not determined
Flash point	:	> 89 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Self-ignition	:	The substance or mixture is not classified as self heating. The substance or mixture is not classified as pyrophoric.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	> 1
Density	:	1.13 g/cm3
Solubility(ies)		
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	No data available
Self-Accelerating decomposition temperature (SADT)	:	60 °C SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.
Viscosity		
Viscosity, dynamic	:	33 - 38 mPa.s
Viscosity, kinematic	:	not determined

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

10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions. Heating may cause a fire or explosion.
Chemical stability	:	Stable under recommended storage conditions. No decomposition if stored normally.
Possibility of hazardous reactions	:	Vapours may form explosive mixture with air.
Conditions to avoid	:	Protect from contamination. Contact with incompatible substances can cause decomposition at or below SADT. Heat, flames and sparks. Avoid confinement.
Incompatible materials	:	Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents
Hazardous decomposition products	:	Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.
May be harmful if inhaled.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 1,632 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: 5.77 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Components:

dimethyl phthalate:

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

Acute inhalation toxicity : (Rat): > 10.4 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Rabbit): > 12,000 mg/kg

2-Butanone, peroxide:

Acute oral toxicity : Acute toxicity estimate: 500 mg/kg
Method: Expert judgement

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement
Assessment: The component/mixture is moderately toxic after short term inhalation.
Remarks: Based on data from similar materials

Acute dermal toxicity : Acute toxicity estimate: 2,500 mg/kg
Method: Expert judgement

Trimethylpentanediol isobutyrate:

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

Acute inhalation toxicity : LCLo (Rat): > 0.12 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Method: Expert judgement
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Guinea pig): > 2,000 mg/kg
Method: Expert judgement
Assessment: The substance or mixture has no acute dermal toxicity

cyclohexanone, peroxide:

Acute oral toxicity : LD50 (Rat, male and female): 1,242 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity	:	LC50 (Rat): > 5,000 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	Remarks: No data available

Butanone:

Acute oral toxicity	:	LD50 (Rat): 2,193 mg/kg Method: OECD Test Guideline 423
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg Method: OECD Test Guideline 402 Remarks: Based on available data, the classification criteria are not met.

hydrogen peroxide:

Acute oral toxicity	:	LD50 (Rat, male and female): 431 mg/kg Method: Expert judgement Assessment: The component/mixture is moderately toxic after single ingestion.
Acute inhalation toxicity	:	Acute toxicity estimate: 1.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The component/mixture is moderately toxic after short term inhalation. Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
Acute dermal toxicity	:	LD50 (Rabbit): 9,200 mg/kg Remarks: No adverse effect has been observed in acute toxicity tests.

Skin corrosion/irritation

Causes severe burns.

Product:

Remarks	:	Extremely corrosive and destructive to tissue.

Components:

dimethyl phthalate:

Species	:	Rabbit
Method	:	Draize Test
Result	:	No skin irritation

2-Butanone, peroxide:

Species	:	Rabbit
Result	:	Causes burns.

Trimethylpentanediol isobutyrate:

Species	:	Guinea pig
Exposure time	:	24 h
Result	:	No skin irritation
Remarks	:	Based on available data, the classification criteria are not met.

cyclohexanone, peroxide:

Species	:	Rabbit
Result	:	Causes burns.

Butanone:

Species	:	Rabbit
Assessment	:	Repeated exposure may cause skin dryness or cracking.
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

hydrogen peroxide:

Result	:	Corrosive after 3 minutes or less of exposure

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks	:	May cause irreversible eye damage.

Components:

dimethyl phthalate:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

2-Butanone, peroxide:

Result	:	Irreversible effects on the eye

Trimethylpentanediol isobutyrate:

Species	:	Rabbit
Result	:	No eye irritation
Exposure time	:	24 h

cyclohexanone, peroxide:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	Draize Test

Butanone:

Species	:	Rabbit
Result	:	Eye irritation
Method	:	OECD Test Guideline 405

hydrogen peroxide:

Result	:	Irreversible effects on the eye
Remarks	:	hydrogen peroxide, 35%

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

dimethyl phthalate:

Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitisation.

2-Butanone, peroxide:

Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.
Assessment	:	Harmful if swallowed., Harmful if inhaled.

Trimethylpentanediol isobutyrate:

Species	:	Guinea pig
Result	:	Does not cause skin sensitisation.

cyclohexanone, peroxide:

Test Type	:	Magnusson-Kligman-Test
Method	:	OECD Test Guideline 406
Result	:	Weak sensitizer
Remarks	:	Not classified due to data which are conclusive although insufficient for classification.

Butanone:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

dimethyl phthalate:

Genotoxicity in vitro	:	Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 473 Result: negative Method: OECD Test Guideline 476 Result: positive
Genotoxicity in vivo	:	Test Type: Chromosomal aberration Species: Rat Application Route: Intraperitoneal Result: negative Test Type: Micronucleus test Species: Mouse Application Route: Intraperitoneal injection Result: negative

2-Butanone, peroxide:

Genotoxicity in vitro	:	Method: OECD Test Guideline 473 Result: negative Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 476 Result: negative

Trimethylpentanediol isobutyrate:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative Test Type: Ames test Method: Regulation (EC) No. 440/2008, Annex, B.13/14 (Ames test) Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

cyclohexanone, peroxide:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Genotoxicity in vivo : Test Type: Chromosomal aberration
Species: Mouse (male and female)
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

Butanone:

Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 476
Result: negative

Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Species: Mouse
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

hydrogen peroxide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
positive
Remarks: Information taken from reference works and the literature.

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive
Remarks: Information taken from reference works and the literature.

Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse (male and female) Method: OECD Test Guideline 474 Result: negative Remarks: hydrogen peroxide, 35%
Germ cell mutagenicity - Assessment	:	Based on available data, the classification criteria are not met.

Carcinogenicity

Not classified due to lack of data.

Components:

dimethyl phthalate:

Species	:	Rat
Application Route	:	Skin contact
Method	:	OECD Test Guideline 451
Result	:	negative
Remarks	:	Based on data from similar materials

2-Butanone, peroxide:

Remarks	:	This information is not available.

hydrogen peroxide:

Carcinogenicity - Assessment	:	Carcinogenicity classification not possible from current data.

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Components:

dimethyl phthalate:

Effects on fertility	:	Species: Rat Application Route: oral (gavage) Method: OECD Test Guideline 440 Result: negative
Effects on foetal development	:	Species: Rat Application Route: Ingestion General Toxicity Maternal: NOAEL: 840 mg/kg body weight Developmental Toxicity: NOAEL: 3,570 mg/kg body weight Method: OECD Test Guideline 414

2-Butanone, peroxide:

Effects on fertility	:	Species: Rat Application Route: oral (gavage)

General Toxicity - Parent: NOAEL: 50 mg/kg body weight
Method: OECD Test Guideline 421
Result: negative

Trimethylpentanediol isobutyrate:

Effects on foetal development	:	Test Type: One-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative
Reproductive toxicity - Assessment	:	Suspected of damaging fertility or the unborn child., Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

cyclohexanone, peroxide:

Effects on foetal development	:	Species: Rat, male and female Application Route: oral (gavage) General Toxicity Maternal: NOEL: 200 mg/kg bw/day Method: OECD Test Guideline 422

Butanone:

Effects on fertility	:	Species: Rat Application Route: oral (drinking water) General Toxicity - Parent: NOAEL: 10,000 mg/l General Toxicity F1: NOAEL: 10,000 mg/l Method: OECD Test Guideline 416 Remarks: Based on data from similar materials Species: Rat Application Route: oral (drinking water) General Toxicity - Parent: LOAEL: 20,000 mg/l Method: OECD Test Guideline 416 Remarks: Based on data from similar materials
Effects on foetal development	:	Species: Rat Application Route: Inhalation General Toxicity Maternal: NOAEC: ca. 1,002 mg/kg body weight Teratogenicity: NOAEC Parent: ca. 1,002 mg/kg body weight Method: OECD Test Guideline 414 Result: negative

hydrogen peroxide:

Reproductive toxicity - Assessment	:	No data available

STOT - single exposure

Not classified due to lack of data.

Components:

cyclohexanone, peroxide:

Assessment	:	May cause respiratory irritation.

Butanone:

Assessment	:	May cause drowsiness or dizziness.

hydrogen peroxide:

Target Organs	:	Respiratory Tract
Assessment	:	May cause respiratory irritation.

STOT - repeated exposure

Not classified due to lack of data.

Components:

hydrogen peroxide:

Remarks	:	No data available

Repeated dose toxicity

Components:

dimethyl phthalate:

Species	:	Rat
NOAEL	:	770 mg/kg
Application Route	:	Oral
Exposure time	:	16 w
Method	:	OECD Test Guideline 408

2-Butanone, peroxide:

Species	:	Rat
NOAEL	:	200 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	28 d
Method	:	OECD Test Guideline 407
Repeated dose toxicity - Assessment	:	Harmful if swallowed., Harmful if inhaled.

cyclohexanone, peroxide:

Species	:	Rat, male and female
NOAEL	:	200 mg/kg bw/day
Application Route	:	oral (gavage)

Method : OECD Test Guideline 422

hydrogen peroxide:

Species : Mouse, female
NOAEL : 37 mg/kg
Application Route : oral (drinking water)
Exposure time : 90 d
Remarks : hydrogen peroxide, 35%

Species : Mouse, males
NOAEL : 26 mg/kg
Application Route : oral (drinking water)
Exposure time : 90
Remarks : hydrogen peroxide, 35%

Aspiration toxicity

Not classified due to lack of data.

Components:

dimethyl phthalate:

No aspiration toxicity classification

Trimethylpentanediol isobutyrate:

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

hydrogen peroxide:

Based on available data, the classification criteria are not met.

Further information

Product:

Remarks : No data available

Components:

dimethyl phthalate:

Remarks : No data available

Trimethylpentanediol isobutyrate:

Remarks : No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

dimethyl phthalate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 39 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): > 52 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 260 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 11 mg/l Exposure time: 102 d Method: OECD Test Guideline 210 LOEC (Oncorhynchus mykiss (rainbow trout)): 24 mg/l Exposure time: 102 d Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 9.6 mg/l Exposure time: 21 d LOEC (Daphnia magna (Water flea)): 23 mg/l Exposure time: 21 d
Toxicity to microorganisms	:	EC50: 4,100 mg/l Exposure time: 0.5 h Method: OECD Test Guideline 209

2-Butanone, peroxide:

Toxicity to fish	:	LC50 (Poecilia reticulata (guppy)): 44.2 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 NOEC (Poecilia reticulata (guppy)): 18 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 39 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 NOEC (Daphnia magna (Water flea)): 26.7 mg/l Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 5.6 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 2.1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (Bacteria): 48 mg/l Exposure time: 0.5 h Method: OECD Test Guideline 209

Trimethylpentanediol isobutyrate:

Toxicity to fish	:	NOEC (Fish): >= 6 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia (water flea)): >= 1.46 mg/l Exposure time: 48 h NOEC (Daphnia (water flea)): 0.7 mg/l Exposure time: 21 d
Toxicity to algae/aquatic plants	:	EC50 (Chlorella pyrenoidosa (algae)): > 7.49 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	LOEC (Daphnia magna (Water flea)): 0.7 mg/l Exposure time: 21 d

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.
Chronic aquatic toxicity	:	Harmful to aquatic life with long lasting effects.

cyclohexanone, peroxide:

Toxicity to fish	:	LC50 (Poecilia reticulata (guppy)): 47.7 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 18 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 1.7 mg/l

Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: No data available

Toxicity to microorganisms : EC10 (Bacteria): 11.1 mg/l
Exposure time: 0.5 h
Method: OECD Test Guideline 209

Ecotoxicology Assessment

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Butanone:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2,993 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 308 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 2,029 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Pseudomonas putida): 1,150 mg/l
Exposure time: 16 h
Method: DIN 38 412 Part 8

hydrogen peroxide:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 16.4 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia pulex (Water flea)): 2.4 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 1.38 mg/l
Exposure time: 72 h

NOEC (Skeletonema costatum (marine diatom)): 0.63 mg/l
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.63 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l

Exposure time: 3 h
Method: OECD Test Guideline 209

Persistence and degradability

Components:

dimethyl phthalate:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301E

2-Butanone, peroxide:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301D

Trimethylpentanediol isobutyrate:

Biodegradability : Result: rapidly biodegradable
Exposure time: 28 d
Method: OECD Test Guideline 301B

cyclohexanone, peroxide:

Biodegradability : aerobic
Biochemical oxygen demand
Result: Readily biodegradable.
Biodegradation: 92 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Butanone:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301D

hydrogen peroxide:

Biodegradability : Result: Readily biodegradable.

Bioaccumulative potential

Components:

dimethyl phthalate:

Bioaccumulation : Bioconcentration factor (BCF): 57
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 1.54

2-Butanone, peroxide:

Partition coefficient: n-octanol/water : log Pow: < 0.3 (25 °C)

Trimethylpentanediol isobutyrate:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 1.95

Partition coefficient: n-octanol/water : log Pow: 4.91 (25 °C)

cyclohexanone, peroxide:

Partition coefficient: n-octanol/water : log Pow: 1.26

Butanone:

Partition coefficient: n-octanol/water : log Pow: 0.3 (40 °C)

hydrogen peroxide:

Partition coefficient: n-octanol/water : log Pow: -1.57 (20 °C)
Remarks: Information refers to the main component.
Calculation

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.
Toxic to aquatic life.

Components:

dimethyl phthalate:

Additional ecological information : No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of wastes in an approved waste disposal facility.
The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemi-

cal or used container.

Contaminated packaging : Dispose of in accordance with local regulations.
Clean container with water.
Dispose of contents/ container to an approved waste disposal plant.
Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3105
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S), CYCLOHEXANONE PEROXIDE(S))
Class	:	5.2
Packing group	:	Not assigned by regulation
Labels	:	5.2
Environmentally hazardous	:	no

IATA-DGR

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

IMDG-Code

UN number	:	UN 3105
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S), CYCLOHEXANONE PEROXIDE(S))
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(S), CYCLOHEXANONE PEROXIDE(S))
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, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

National regulatory information

Gefahrgruppe nach TRGS 741: Ib (German regulatory requirements)
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

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

TCSI (TW)	:	On the inventory, or in compliance with the inventory
TSCA (US)	:	All substances listed as active on the TSCA inventory
AIIC (AU)	:	All components are listed on the inventory, regulatory obligations/restrictions apply
DSL (CA)	:	All components of this product are on the Canadian DSL
ENCS (JP)	:	On the inventory, or in compliance with the inventory
ISHL (JP)	:	On the inventory, or in compliance with the inventory
KECI (KR)	:	On the inventory, or in compliance with the inventory
PICCS (PH)	:	On the inventory, or in compliance with the inventory

IECSC (CN)	:	On the inventory, or in compliance with the inventory
TECI (TH)	:	On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

Revision Date	:	2024/04/22

Further information

Other information	:	This safety datasheet only contains information relating to safety and does not replace any product information or product specification. These safety instructions also apply to empty packaging which may still contain product residues. The hazards on the label also apply to residues in the container.
Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Date format	:	yyyy/mm/dd

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
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 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.

CN / EN