

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : NOROX[®] ENP-90

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 : Hardener

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	: liquid
Colour	: colourless
Odour	: characteristic

Flammable liquid and vapour. Heating may cause a fire. Harmful if swallowed or if inhaled. Causes severe skin burns and eye damage. May cause respiratory irritation. Suspected of damaging fertility or the unborn child. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

GHS Classification

Flammable liquids : Category 3

Organic peroxides : Type D

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin corrosion/irritation : Category 1B

Serious eye damage/eye irritation : Category 1

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version 3.0 Revision Date: 2022/07/29 SDS Number: 600000000648 Date of last issue: 2022/06/01
Date of first issue: 2018/01/19

Reproductive toxicity : Category 2

Specific target organ toxicity - single exposure : Category 3 (respiratory tract irritation)

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 3

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.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H361 Suspected of damaging fertility or the unborn child.
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. No smoking.
P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /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 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 protec-

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

tion/ 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:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P410 Protect from sunlight.

P411 + P235 Store at temperatures not exceeding < 30 °C/ < 86 °F. Keep cool.

P420 Store away from other materials.

Disposal:

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

Physical and chemical hazards

Flammable liquid and vapour. Heating may cause a fire.

Health hazards

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

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version 3.0 Revision Date: 2022/07/29 SDS Number: 600000000648 Date of last issue: 2022/06/01
Date of first issue: 2018/01/19

Components

Chemical name	CAS-No.	Concentration (% w/w)
Trimethylpentanediol isobutyrate	6846-50-0	>= 40 -< 45
2-Butanone, peroxide	1338-23-4	>= 30 -< 35
Diacetone alcohol	123-42-2	>= 10 -< 15
Butanone	78-93-3	>= 1 -< 5
Hydrogen peroxide	7722-84-1	>= 2.5 -< 3

4. FIRST AID MEASURES

- General 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.
Call a physician immediately.
- If inhaled : Call a physician or poison control centre immediately.
If unconscious, place in recovery position and seek medical advice.
Keep respiratory tract clear.
Call a physician immediately.
If breathed in, move person into fresh air.
- In case of skin contact : 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.
If symptoms persist, call a physician.
- 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 : Keep respiratory tract clear.
Do NOT induce vomiting.
Call a physician immediately.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed or if inhaled.
Causes serious eye damage.
May cause respiratory irritation.
Suspected of damaging fertility or the unborn child.

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

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 : 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.
Vapours may form explosive mixtures with air.
The product will float on water and can be reignited on surface water.
Cool closed containers exposed to fire with water spray.

Specific extinguishing methods : 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.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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 for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Remove all sources of ignition.
Evacuate personnel to safe areas.

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

- Follow safe handling advice and personal protective equipment recommendations.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- 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 combustible material.
- Advice on safe handling : 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.

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version 3.0 Revision Date: 2022/07/29 SDS Number: 600000000648 Date of last issue: 2022/06/01
Date of first issue: 2018/01/19

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.
Protect from contamination.

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

Storage

Conditions for safe storage : 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.
Store in original container.
Keep containers tightly closed in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

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

Recommended storage temperature : < 30 °C

Further information on storage stability : No decomposition if stored normally.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2-Butanone, peroxide	1338-23-4	MAC	1.5 mg/m ³	CN OEL
		Further information: Skin		
		C	0.2 ppm	ACGIH
Diacetone alcohol	123-42-2	PC-TWA	240 mg/m ³	CN OEL
		TWA	50 ppm	ACGIH
Butanone	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	7722-84-1	PC-TWA	1.5 mg/m ³	CN OEL
		TWA	1 ppm	ACGIH

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version 3.0 Revision Date: 2022/07/29 SDS Number: 600000000648 Date of last issue: 2022/06/01
Date of first issue: 2018/01/19

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	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 : Tightly fitting safety goggles
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Hand protection

Material : Nitrile rubber
Break through time : 30 min
Glove thickness : 0.40 mm

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. 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.

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Hygiene measures : 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	: characteristic
pH	: No data available
Melting point/range	: < -25 °C
Boiling point/boiling range	: Decomposition: Decomposes below the boiling point.
Flash point	: 57 °C Method: ISO 3679
Flammability (solid, gas)	: Not applicable
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapour pressure	: 0.002 hPa (25 °C)
Density	: 1.01 g/cm ³ (20 °C)
Solubility(ies)	
Water solubility	: ca. 6.5 g/l slightly soluble (20 °C)
Solubility in other solvents	: Solvent: Phthalates Description: completely miscible
Partition coefficient: n-octanol/water	: log Pow: 0.3 (25 °C)
Self-Accelerating decomposi-	: 60 °C

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

tion temperature (SADT)	Method: UN-Test H.4 SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.
Viscosity Viscosity, dynamic	: 13 mPa.s (20 °C)
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing. Organic peroxide
Refractive index	: 1.431 (20 °C)

10. STABILITY AND REACTIVITY

Reactivity	: Stable under recommended storage conditions.
Chemical stability	: Stable under recommended storage conditions.
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 or if inhaled.

Product:

Acute oral toxicity	: Acute toxicity estimate: 1,395 mg/kg Method: Calculation method
Acute inhalation toxicity	: Acute toxicity estimate: 4.6 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version 3.0 Revision Date: 2022/07/29 SDS Number: 600000000648 Date of last issue: 2022/06/01
Date of first issue: 2018/01/19

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Components:

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

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

Diacetone alcohol:

Acute oral toxicity : LD50 (Rat): 3,002 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC0 (Rat, male and female): >= 7.6 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD0 (Rat): > 1,875 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: No mortality observed at this dose.

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 : Acute toxicity estimate: 500.0 mg/kg
Method: Converted acute toxicity point estimate
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat): > 0.17 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): > 6,500 mg/kg

Skin corrosion/irritation

Causes severe burns.

Product:

Remarks : Extremely corrosive and destructive to tissue.

Components:

Trimethylpentanediol isobutyrate:

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

2-Butanone, peroxide:

Species : Rabbit
Result : Causes burns.

Diacetone alcohol:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

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

Remarks : Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks : May cause irreversible eye damage.

Components:

Trimethylpentanediol isobutyrate:

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

2-Butanone, peroxide:

Result : Irreversible effects on the eye

Diacetone alcohol:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days
Method : OECD Test Guideline 405

Butanone:

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Hydrogen peroxide:

Result : Irreversible effects on the eye

Remarks : May cause irreversible eye damage.

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Trimethylpentanediol isobutyrate:

Species : Guinea pig
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.

Diacetone alcohol:

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

Butanone:

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

Germ cell mutagenicity

Not classified based on available information.

Components:

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

(Ames test)
Result: negative

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

Diacetone alcohol:

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

Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 473
Result: negative

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

Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

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:

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Genotoxicity in vitro : Test Type: Ames test
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

2-Butanone, peroxide:

Remarks : This information is not available.

Diacetone alcohol:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

Hydrogen peroxide:

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

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Components:

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.

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

Diacetone alcohol:

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Effects on fertility : Species: Rat
Application Route: oral (gavage)
General Toxicity - Parent: NOAEL: 300 mg/kg body weight
General Toxicity F1: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 422

Effects on foetal development : Species: Rat
Application Route: inhalation (vapour)
General Toxicity Maternal: NOAEL: 4.106
Embryo-foetal toxicity: NOAEL: 12,292
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment : No data available

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

STOT - single exposure

May cause respiratory irritation.

Components:

Diacetone alcohol:

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

Butanone:

Assessment : May cause drowsiness or dizziness.

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Hydrogen peroxide:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

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.

Diacetone alcohol:

Species : Rat
NOAEL : 1.04 mg/l
LOAEL : 4.685 mg/l
Application Route : inhalation (vapour)
Exposure time : 6 w
Method : OECD Test Guideline 412

Species : Rat
NOAEL : 100 mg/kg
Application Route : oral (gavage)
Method : OECD Test Guideline 422

Hydrogen peroxide:

Species : Mouse
Application Route : Ingestion
Exposure time : 90 d
Symptoms : No adverse effects

Aspiration toxicity

Not classified based on available information.

Components:

Trimethylpentanediol isobutyrate:

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Further information

Product:

Remarks : Solvents may degrease the skin.

Components:

Trimethylpentanediol isobutyrate:

Remarks : No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

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.

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

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

Diacetone alcohol:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 1,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

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

Persistence and degradability

Components:

Trimethylpentanediol isobutyrate:

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

2-Butanone, peroxide:

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

Diacetone alcohol:

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

Butanone:

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

Hydrogen peroxide:

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Biodegradability : Result: Readily biodegradable.

Bioaccumulative potential

Components:

Trimethylpentanediol isobutyrate:

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

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

2-Butanone, peroxide:

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

Diacetone alcohol:

Partition coefficient: n-octanol/water : log Pow: -0.09 (20 °C)

Butanone:

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

Hydrogen peroxide:

Partition coefficient: n-octanol/water : log Pow: -1.57
Remarks: 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.
Harmful to aquatic life with long lasting effects.

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 chemi-

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

cal or used container.
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : 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.
Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3105
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
(METHYL ETHYL KETONE PEROXIDE(S))
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2

IATA-DGR

UN/ID No. : UN 3105
Proper shipping name : Organic peroxide type D, liquid
(Methyl ethyl ketone 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))
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))
Class : 5.2

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

Packing group : Not assigned by regulation
Labels : 5.2

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 DGUV 13 Vorschrift 13 (bisher BGV B4): II (German regulatory requirements)

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals : Listed

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

No. / Code	Chemical name / Category	Threshold quantity
W5.4	Flammable liquids	5,000 t
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

AIRC (AU) : On the inventory, or in compliance with the inventory

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

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

16. OTHER INFORMATION

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.
- 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-STEEL : Permissible concentration - short term exposure limit
CN OEL / MAC : Maximum allowable concentration

AIIIC - 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, Bioaccumu-

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



NOROX[®] ENP-90

Version	Revision Date:	SDS Number:	Date of last issue: 2022/06/01
3.0	2022/07/29	600000000648	Date of first issue: 2018/01/19

lative 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; TECl - 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