

SAFETY DATA SHEET

NOROX[®] 600



Version 1.0 Revision Date: 04/03/2019 SDS Number: 600000000181 Date of last issue: -
Date of first issue: 04/03/2019

SECTION 1. IDENTIFICATION

Product name : NOROX[®] 600

Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : United Initiators, Inc.

Address : 555 Garden Street
Elyria OH 44035

Telephone : +1-440-323-3112

Telefax : +1-440-323-2659

Emergency telephone : CHEMTREC US (24h): +1-800-424-9300
CHEMTREC WORLD (24h): +1-703-527-3887

E-mail address of person responsible for the SDS : cs-initiators.nafta@united-in.com

Recommended use of the chemical and restrictions on use

Recommended use : polymerization initiators

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Organic peroxides : Type C

Combustible dust : Category 1

Skin sensitization : Category 1

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H242 Heating may cause a fire.
May form combustible dust concentrations in air.

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H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P240 Ground and bond container and receiving equipment.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P333 + P313 If skin irritation or rash occurs: 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:

P403 Store in a well-ventilated place.
P410 Protect from sunlight.
P411 Store at temperatures not exceeding < 20 °C/ < 68 °F.
P420 Store separately.

Disposal:

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance
Chemical nature : Organic Peroxides, Solid
Substance name : Di(4-tert-butylcyclohexyl) peroxydicarbonate
CAS-No. : 15520-11-3
Synonyms : No data available

Components

Chemical name	CAS-No.	Concentration (% w/w)
Di(4-tert-butylcyclohexyl) peroxydicarbonate	15520-11-3	<= 100

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SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Show this material 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 : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
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 : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
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.
Call a physician immediately.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
- 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.
-

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray jet
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet

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- 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.
Vapors 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 : 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.
- Further information : 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.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Remove all sources of ignition.
Follow safe handling advice and personal protective equipment recommendations.
Never return spills in original containers for re-use.
Treat recovered material as described in the section "Disposal considerations".
- 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/vapors/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.

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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.

SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.
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 vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
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.
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Protect from contamination.
- 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 tem- : < 20 °C

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perature

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

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 : Filter type P

Hand protection

Material : butyl-rubber
Break through time : \geq 480 min
Glove thickness : 0.5 mm

Remarks : 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.

Eye 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.

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance : powder

Color : white

Odor : characteristic

Odor Threshold : No data available

pH : No data available

Melting point/range : 82 °C
Decomposition: Decomposes below the melting point.

Boiling point/boiling range : Not applicable

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : Not applicable

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : > 0.00001 hPa (20 °C)

Bulk density : 1,100 kg/m³ (20 °C)

Solubility(ies)
Water solubility : 0.0056 g/l insoluble (5 °C)

Partition coefficient: n-octanol/water : log Pow: 8.34

Self-Accelerating decomposition temperature (SADT) : 45 °C
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 : Not applicable

Viscosity, kinematic : Not applicable

Explosive properties : Not explosive

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

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SECTION 10. STABILITY AND REACTIVITY

- Reactivity : Stable under recommended storage conditions.
- Chemical stability : Stable under recommended storage conditions.
- Possibility of hazardous reactions : Dust may form explosive mixture in 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
-

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Product:

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is minimally toxic after single ingestion.
- Acute inhalation toxicity : Remarks: No data available
- Acute dermal toxicity : Remarks: No data available

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is minimally toxic after single ingestion.
- Acute inhalation toxicity : Remarks: No data available
- Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Not classified based on available information.

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Product:

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

Remarks : May cause skin irritation in susceptible persons.

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

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

Serious eye damage/eye irritation

Not classified based on available information.

Product:

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

Remarks : Product dust may be irritating to eyes, skin and respiratory system.

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

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

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Product:

Species : Mouse
Method : OECD Test Guideline 429
Result : May cause sensitization by skin contact.

Remarks : Causes sensitization.

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

Species : Mouse
Method : OECD Test Guideline 429
Result : May cause sensitization by skin contact.

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STOT-single exposure

Not classified based on available information.

Product:

Remarks : No data available

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

Remarks : No data available

STOT-repeated exposure

Not classified based on available information.

Repeated dose toxicity

Product:

Species : Rat
NOAEL : 500 mg/kg
LOAEL : 1,000 mg/kg
Application Route : Oral
Exposure time : 28 d
Method : OECD Test Guideline 407

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

Species : Rat
NOAEL : 500 mg/kg
LOAEL : 1,000 mg/kg
Application Route : Oral
Exposure time : 28 d
Method : OECD Test Guideline 407

Aspiration toxicity

Not classified based on available information.

Product:

No data available

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

No data available

Further information

Product:

Remarks : No data available

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 704 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 42 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 39 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 704 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 42 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 39 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Persistence and degradability

Product:

- Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301B

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

- Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301B

Bioaccumulative potential

Product:

- Bioaccumulation : Bioconcentration factor (BCF): 2,926

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:

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Bioaccumulation : Bioconcentration factor (BCF): 2,926

Partition coefficient: n-octanol/water : log Pow: 8.34
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.
Harmful to aquatic life with long lasting effects.

SECTION 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 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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3114
Proper shipping name : ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
(DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE)
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2

IATA-DGR

Not permitted for transport

IMDG-Code

UN number : UN 3114
Proper shipping name : ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
(DI-(4-tert-BUTYLCYCLOHEXYL)PEROXYDICARBONATE)
Class : 5.2
Packing group : Not assigned by regulation

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Labels : 5.2
EmS Code : F-F, 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.

Domestic regulation

TDG

UN number : UN 3114
Proper shipping name : ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED (DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE)
Class : 5.2
Packing group : II
Labels : 5.2
ERG Code : 148
Marine pollutant : no

Special precautions for user

Additional advice:

Temperature controlled transport.:
Control temperature : 30 °C
Emergency temperature : 35 °C

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.

SECTION 15. REGULATORY INFORMATION

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

DSL (CA) : All components of this product are on the Canadian DSL
AICS (AU) : On the inventory, or in compliance with the inventory
NZIoC (NZ) : On the inventory, or in compliance with the inventory
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
TCSI (TW) : On the inventory, or in compliance with the inventory
TSCA (US) : On TSCA Inventory

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Canadian lists

No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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; CPR - Controlled Products Regulations; 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; 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

This material 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 Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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The information provided in this Material 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 re-lease 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.

CA / Z8