



MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/23/2013

Version 1.1

SECTION 1. Identification

Product identifier

Product number 820248
Product name Di-tert-butyl peroxide for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses Chemical for synthesis

Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 2, H225
Organic peroxide, Type E, H242

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

GHS-Labeling

Hazard pictograms



Signal Word
Danger

Hazard Statements

H225 Highly flammable liquid and vapor.
H242 Heating may cause a fire.

Precautionary Statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.

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P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula $C_8H_{18}O_2$ (Hill)
CAS-No. 110-05-4
Molar mass 146.23 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

di-tert-butyl peroxide (>= 90 % - <= 100 %)

110-05-4

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing.

Eye contact

After eye contact: rinse out with plenty of water.

Ingestion

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

narcosis

Organic peroxides show inter alia a more or less strongly pronounced irritant effect on skin and mucous membranes. In some cases it has displayed a sensitizing effect with allergic manifestations in predisposed persons. Mutagenic properties have occurred in some representatives. The product should be handled with the care usual when dealing with chemicals.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Foam, Dry powder

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Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible material

Has a fire-promoting effect due to release of oxygen.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Tightly closed. Separately or together with other organic peroxides only and away from sources of ignition and heat.

Store at +15°C to +25°C (+59°F to +77°F).

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SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Change contaminated clothing. Application of skin- protective barrier cream recommended.
Wash hands after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Flame retardant antistatic protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	ether-like
Odor Threshold	No information available.
pH	No information available.
Melting point	< -25 °C
Boiling point	No information available.
Flash point	43 °F (6 °C) Method: open cup
Evaporation rate	No information available.

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Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	> 99 %(V)
Vapor pressure	1,000 hPa at 230 °F (110 °C)
Relative vapor density	5.0
Relative density	0.80 g/cm ³ at 68 °F (20 °C)
Water solubility	ca.0.063 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 3.45 (calculated) (Lit.)
	A remarkable bioaccumulation potential is expected (log Po/w >3).
Autoignition temperature	No information available.
Decomposition temperature	> 176 °F (> 80 °C)
Viscosity, dynamic	0.85 mPa.s at 68 °F (20 °C)
Explosive properties	No information available.
Ignition temperature	360 °F (182 °C)

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.
Has a fire-promoting effect due to release of oxygen.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

Amines, alkalines, Heavy metal salts, strong reducing agents, boron compounds, acids

Risk of ignition or formation of inflammable gases or vapors with:

highly flammable solvents

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Conditions to avoid

Warming.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

May readily catch fire after brief contact with a source of ignition.

Incompatible materials

no information available

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact

Acute oral toxicity

LD50 rat: > 25,000 mg/kg (RTECS)

Acute inhalation toxicity

LC50 rat: 24,929 mg/m³; 4 h (IUCLID)

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

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

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

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carcinogen by ACGIH.

Further information

After absorption of large quantities:
narcosis

Other information

Organic peroxides show inter alia a more or less strongly pronounced irritant effect on skin and mucous membranes. In some cases it has displayed a sensitizing effect with allergic manifestations in predisposed persons. Mutagenic properties have occurred in some representatives. The product should be handled with the care usual when dealing with chemicals.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Poecilia reticulata* (guppy): > 1,000 mg/l; 96 h

OECD Test Guideline 203

Persistence and degradability

No information available.

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 3.45

(calculated)

(Lit.)

A remarkable bioaccumulation potential is expected (log Po/w >3).

Mobility in soil

No information available.

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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SECTION 14. Transport information

Land transport (DOT)

UN number UN 3107
Proper shipping name ORGANIC PEROXIDE TYPE E, LIQUID (DI-TERT-BUTYL PEROXIDE)
Class 5.2
Packing group
Environmentally hazardous --

Air transport (IATA)

UN number UN 3107
Proper shipping name ORGANIC PEROXIDE TYPE E, LIQUID (DI-TERT-BUTYL PEROXIDE)
Class 5.2
Packing group
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 3107
Proper shipping name ORGANIC PEROXIDE TYPE E, LIQUID (DI-TERT-BUTYL PEROXIDE)
Class 5.2
Packing group
Environmentally hazardous --
Special precautions for user yes
EmS F-J S-R

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Flammable Liquid
Organic Peroxide

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Reactivity Hazard

SARA 313

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 302

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Product name

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SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

di-tert-butyl peroxide

Pennsylvania Right To Know

Ingredients

di-tert-butyl peroxide

New Jersey Right To Know

Ingredients

di-tert-butyl peroxide

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H225 Highly flammable liquid and vapor.

H242 Heating may cause a fire.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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