



TCI AMERICA

SAFETY DATA SHEET

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Revision number: 3
Revision date: 10/06/2014

1. IDENTIFICATION

Product name: Di-tert-butyl Peroxide
Product code: D3411

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
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Portland, OR 97203 U.S.A.
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Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
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Transportation Emergencies:
Chemtrec 24-Hour
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+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
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2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Eye Damage/Irritation [Category 2B]
Flammable Liquids [Category 2]
Organic Peroxides - Type E

Signal word: Danger!

Hazard Statement(s): Causes eye irritation
Heating may cause a fire
Highly flammable liquid and vapor

Pictogram(s) or Symbol(s):



Precautionary Statement(s):
[Prevention]

[Response]

[Storage]

[Disposal]

Wash hands and face thoroughly after handling. Keep away from heat, sparks, open flames or other hot surfaces. - No smoking. Keep container tightly closed. Ground or bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting, and equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves, eye protection and face protection. Store away from clothing and other combustible materials. Keep only in original container. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish. Store in a well-ventilated place. Keep cool. Store at temperatures not exceeding .? °C/ .?1 °F. Keep cool. Protect from sunlight. Store away from other materials. Dispose of contents and container in accordance with US EPA guidelines for the classification and determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)

3. COMPOSITION/INFORMATION ON INGREDIENTS

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Substance/Mixture:	Substance
Components:	Di-tert-butyl Peroxide
Percent:	>98.0%(GC)
CAS Number:	110-05-4
Molecular Weight:	146.23
Chemical Formula:	C ₈ H ₁₈ O ₂
Synonyms:	tert-Butyl Peroxide

4. FIRST-AID MEASURES

Inhalation:	Call emergency medical service. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Skin contact:	Call a poison center or doctor if you feel unwell. Remove and wash contaminated clothing before re-use. Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Eye contact:	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Contact with material may irritate or burn eyes. Call emergency medical service. Move victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Ingestion:	Do not induce vomiting with out medical advice. Call a physician or Poison Control Center immediately. Do not use mouth-to-mouth method if victim ingested the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Loosen tight clothing such as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Symptoms/effects:	
Acute:	Redness.
Delayed:	No data available
Immediate medical attention:	If breathing has stopped, perform artificial respiration. Use first aid treatment according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Water spray or fog is preferred; if water not available use dry chemical, CO ₂ , or regular foam. Consult with local fire authorities before attempting large scale fire fighting operations.
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Specific hazards arising from the chemical

Hazardous combustion products:	These products include: Carbon oxides
Other specific hazards:	Closed containers may explode from heat of a fire.

Special precautions for fire-fighters:

Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material. CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. Do not use straight streams. Runoff to sewer may create fire or explosion hazard. These substances will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Move containers from fire area if you can do it without risk.

Special protective equipment for fire-fighters:

Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Avoid contact with skin, eyes, and clothing. Keep people away from and upwind of spill/leak. Use spark-proof tools and explosion-proof equipment. Remove all sources of ignition. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
Personal protective equipment:	Wear eye protection (splash goggles) and face protection (full length face shield). Lab coat. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile).

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures: Keep combustibles (wood, paper, oil, etc.) away from spilled materials. Isolate area until gas has dispersed. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in the immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed.

Methods and materials for containment and cleaning up:

ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). All equipment used when handling the product must be grounded. Stop leak if without risk. Ventilate the area. Keep away from combustible materials, reducing agents, acids, metal powders, light, heat, and sources of ignition. Keep substance damp using water spray. Take up with inert, damp, non-combustible material using clean non-sparking tools and place into loosely covered plastic containers for later disposal. Do not clean-up or dispose except under supervision of a specialist.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into sewers, basements or confined areas; dike if needed.

7. HANDLING AND STORAGE

Precautions for safe handling: Do NOT breath gas, fumes, vapor, or spray. Avoid contact with skin and eyes. Keep away from heat and sources of ignition. Use explosion-proof equipment. Use only non-sparking hand tool when handling this product. Ground all equipment containing material. Take measures to prevent build up of electrostatic charge. Avoid contact with combustible material (wood, paper, oil, clothing...). Good general ventilation should be sufficient to control airborne levels. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not eat, drink, or smoke. Keep away from sources of ignition.

Conditions for safe storage: Keep containers tightly closed in a cool, well-ventilated place. Keep away from sources of ignition. Store and use away from heat, sparks, open flame, or any other ignition source. Keep away from combustible materials. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods. Store in a freezer.

Storage incompatibilities: Combustible substances, Reducing Agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No data available

Appropriate engineering controls:

Good general ventilation should be sufficient to control airborne levels. Ventilation is normally required when handling or using this product. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial engineering/laboratory practices when handling any chemical.

Personal protective equipment

Respiratory protection: Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.

Hand protection: Wear protective gloves.

Eye protection: Splash goggles.

Skin and body protection: Lab coat.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid

Form: Clear

Color: Colorless - Slightly pale yellow

Odor: Characteristic

Odor threshold: No data available

Melting point/freezing point: -40°C (-40°F)

Boiling point/range: 111°C (232°F)

Decomposition temperature: No data available

Relative density: 0.80

Kinematic Viscosity: No data available

Partition coefficient: 1 - 4

n-octanol/water (log P_{ow})

Flash point: 12°C (54°F)

Flammability (solid, gas): No data available

Solubility(ies):

Water: Insoluble

pH: No data available

Vapor pressure: 2.6kPa/20°C

Vapor density: 5

Dynamic Viscosity: No data available

Evaporation rate: No data available

(Butyl Acetate = 1)

Autoignition temperature: 475°C (887°F)

Flammability or explosive limits:

Lower: No data available

Upper: No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Soluble: Acetone, Carbon tetrachloride, Many organic solvents

10. STABILITY AND REACTIVITY

Reactivity:	May form explosive peroxides. Contact with combustible material may cause fire.
Chemical Stability:	Heat sensitive.
Possibility of Hazardous Reactions:	In use, may form flammable/explosive vapor-air mixture.
Conditions to avoid:	Heat sensitive.
Incompatible materials:	Oxidizing agents
Hazardous Decomposition Products:	No data available

11. TOXICOLOGICAL INFORMATION

RTECS Number: ER2450000

Acute Toxicity:

ihl-rat LC50:>4100 ppm/4H

ipr-rat LD50:3210 mg/kg

orl-rat LD50:>25 g/kg

Skin corrosion/irritation:

skn-rbt 500 mg

Serious eye damage/irritation:

eye-rbt 500 mg/24H MLD

Respiratory or skin sensitization:

No data available

Germ cell mutagenicity:

No data available

Carcinogenicity:

unr-mus TDLo:585 mg/kg

IARC: No data available

NTP: No data available

OSHA: No data available

Reproductive toxicity:

ihl-rat TCLo:226 mg/m³/4H(1-19D preg)

Routes of Exposure:

Inhalation, Eye contact, Ingestion, Skin contact.

Symptoms related to exposure:

Eye contact may result in redness or pain.

Potential Health Effects:

No specific information available; skin and eye contact may result in irritation. May be harmful if inhaled or ingested.

Target organ(s):

No data available

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Fish:	No data available
Crustacea:	No data available
Algae:	No data available

Persistence and degradability:

0% (by BOD), 0% (by GC)

Bioaccumulative potential (BCF):

250

Mobility in soil:

No data available

Partition coefficient:

1 - 4

n-octanol/water (log P_{ow})**Soil adsorption (K_{oc}):**

720

Henry's Law:

121.5

constant (PaM³/mol)

13. DISPOSAL CONSIDERATIONS

Disposal of product:	Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container:	Dispose of as unused product. Do not re-use empty containers.
Other considerations:	Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION**DOT (US)**

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN3107	Organic peroxide type E, liquid	5.2 Organic peroxide	II

IATA

UN number:	Proper Shipping Name:	Class or Division:
UN3107	Organic peroxide type E, liquid	5.2 Organic peroxide

IMDG

UN number:	Proper Shipping Name:	Class or Division:
UN3107	Organic peroxide type E, liquid	5.2 Organic peroxide

EmS number: F-J, S-R

15. REGULATORY INFORMATION**Toxic Substance Control Act (TSCA 8b.):**

This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations**CERCLA Hazardous substance and Reportable Quantity:**

SARA 313:	Not Listed
SARA 302:	Not Listed

State Regulations**State Right-to-Know**

Massachusetts	Not Listed
New Jersey	Listed
Pennsylvania	Not Listed
California Proposition 65:	Not Listed

Other Information**NFPA Rating:**

Health:	1
Flammability:	3
Instability:	1

HMIS Classification:

Health:	1
Flammability:	3
Physical:	1

International Inventories

WHMIS hazard class:	B2: Flammable Liquid. D2B: Materials causing other toxic effects. (Toxic)
EC-No:	203-733-6

16. OTHER INFORMATION

Revision date: 10/06/2014

Revision number: 3

16. OTHER INFORMATION

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.