

HEALTH 1  
 FLAMMABILITY 3  
 REACTIVITY 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

<b>Product label name</b> Di(4-tert-butylcyclohexyl) peroxydicarbonate, powder	
<b>Supplier</b> Akzo Nobel Polymer Chemicals LLC 525 West Van Buren Street Chicago, IL 60607-3823  www.akzonobel-polymerchemicals.com	
<b>Emergency telephone</b> + 1-914-693-6946 Dobbs Ferry, NY USA	<b>transportation emergency</b> CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-996-6666
<b>Intended use</b> polymerization initiator	
<b>Date of first issue</b> 2005/12/08	<b>Date of last issue / Revision #</b> 2006/01/26 / 2:89
<b>Chemical family</b> peroxides	

1/29/06

2. COMPOSITION/INFORMATION ON INGREDIENTS

<b>Information on hazardous ingredients</b>			
<b>Chemical description</b> Di(4-tert-butylcyclohexyl) peroxydicarbonate, powder			
<b>Composition / information on ingredients</b>			
<b>Number</b>	<b>% w/w</b>	<b>CAS-number</b>	<b>Chemical name</b>
1	> 94.0	015520-11-3	Di(4-tert-butylcyclohexyl) peroxydicarbonate

3. HAZARDS IDENTIFICATION

<b>Emergency overview</b> white powder with faint odor. DANGER! ORGANIC PEROXIDE. REFRIGERATED ORGANIC PEROXIDE- MAINTAIN COOLING. HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION. MAY CAUSE RESPIRATORY TRACT IRRITATION. Peroxides and peroxide decomposition products are flammable and can ignite with explosive force if confined.	
<b>Health effects</b> Skin and eye contact are the primary routes of exposure to this product. Inhalation of dust may cause irritation to nose, throat and upper respiratory system. Skin contact is not expected to cause irritation. Eye contact may cause slight irritation. Irritation to the mouth, throat, esophagus and stomach may be caused by ingestion of this material.	
<b>Carcinogenicity</b>	
<b>Description</b>	<b>Applicable</b>
IARC	no
NTP	no
OSHA	no
ACGIH	no

4. FIRST AID MEASURES

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## Symptoms and effects

Dust may be irritating to the respiratory tract and cause symptoms of bronchitis.

## First aid

### General

In all cases of doubt, or when symptoms persist, seek medical attention.

### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Oxygen may additionally be given, by trained personnel, if it is available. Get medical attention if symptoms occur.

### Skin

Flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops and persists. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.

### Eye

Immediately flush eyes with plenty of water. If easy to do, contact lenses should be removed during the flushing, by trained personnel. Occasionally hold the eyelids apart during the flushing to ensure rinsing the entire surface of the eye and lids with water. Get medical attention if irritation develops and persists.

### Ingestion

Call a physician or a poison control center immediately. Induce vomiting only if directed by medical personnel. The patient should lie on their left side while vomiting to reduce the risk of aspiration. Never give anything by mouth to an unconscious or convulsing person.

## Advice to physician

There are no data available that address medical conditions that are generally recognized as being aggravated by exposure to this material.

Attending physician should treat exposed patients symptomatically.

## 5. FIRE-FIGHTING MEASURES

### Extinguishing media

waterspray, foam, sand, dry chemical powder, CO<sub>2</sub>.

### Unsuitable extinguishing media

halones.

### Hazardous decomposition/ combustion products

CO<sub>2</sub>, Carbon monoxide.4-tert-Butylcyclohexanol.

### Protective equipment

Firefighters must wear fire resistant protective equipment. Wear approved respirator and protective gloves.

### Other information

Evacuate all non-essential personnel. Extinguish a small fire with powder or carbon dioxide then apply water to prevent re-ignition. Cool closed containers with water. Water used to extinguish a fire should not be allowed to enter the drainage system or water courses. After a fire, ventilate thoroughly the area and soak with water, clean the walls and metallic surfaces.

### Fire and explosion hazard

CAUTION: reignition may occur. Decomposition under effect of heating (See also Section Hazardous decomposition products). If involved in a fire, it will support combustion. dust explosion hazard. Vapours may form explosive mixtures with air. In case of fire and/or explosion do not breathe fumes.

## NFPA ratings

Hazard	Rating
Health	1

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Flammability	3
Reactivity	2
Other	

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b> Do not breathe dust. For personal protection see Section 8.
<b>Environmental precautions</b> Do not allow to enter drains or water courses.
<b>Methods for cleaning up</b> Stop leakage if possible. Eliminate all sources of ignition, and do not generate flames or sparks. Sweep up and put it into a container for disposal. Avoid dust generation. Keep contents moist. The waste should NOT be confined. Flush surroundings with large amounts of water and soap.
<b>Other information</b> CAUTION: reignition may occur. Evacuate personnel to safe area.

## 7. HANDLING AND STORAGE

<b>Handling</b> Never weigh out in the storage room. When using do not eat, drink or smoke. Do not breathe dust. Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Keep product and emptied container away from heat and sources of ignition. Confinement must be avoided. Avoid Incompatible materials (See Section 10).
<b>Storage requirements</b> Store in accordance with local/national regulations. Keep away from food, drink and animal feedingstuffs. Store in a dry well ventilated place away from sources of heat and direct sunlight. Store separate from other chemicals. Keep only in the original container.
<b>Storage</b> For maximum quality store below: 20 °C. For safety, store below 30 °C.
<b>Other information</b> It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded. Wash hands thoroughly after handling or contact. Keep working clothing separately and do not take them home.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Engineering controls</b> Ensure good ventilation and local exhaustion of the working area. Explosion proof ventilation recommended.
<b>Personal protection</b> <b>Respiratory</b> In case of dust formation use dust mask.
<b>Hand</b> Wear suitable protective gloves of neoprene or synthetic rubber.
<b>Eye</b> Wear eye/face protection.
<b>Skin and body</b> Wear suitable protective clothing.
<b>Other information</b> Emergency-shower and facilities for rinsing eyes must be accessible. Launder clothes before reuse.

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In this country no exposure limit has been established

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance and Odor</b> white powder with faint odor.
<b>Boiling point/range</b> not applicable (Decomposes)
<b>Melting point/range</b> Decomposes prior to melting.
<b>Flash point</b> not applicable
<b>Flammability</b> Decomposition products may be flammable.
<b>Explosive properties</b> no
<b>Oxidizing properties</b> not applicable
<b>Vapour pressure</b> not applicable
<b>Density</b> 1130 kg/m <sup>3</sup> (20°C / 68°F) Specific gravity = 1.13 (20°C / 68°F)
<b>Bulk density</b> 450-480 kg/m <sup>3</sup> (20°C / 68°F) Specific gravity = 0.45-0.48 (20°C / 68°F)
<b>Solubility in water</b> Insoluble at 20°C / 68°F
<b>Solubility in other solvents</b> Soluble with aliphatic solvents.
<b>pH value</b> slightly acidic
<b>Partition coefficient n-octanol/water</b> not determined
<b>Relative vapour density (air=1)</b> not applicable
<b>Viscosity</b> not applicable
<b>Active oxygen content</b> 3.8 %
<b>Peroxide content</b> 95 %
<b>Autoignition temperature</b> Test method not applicable (See Section 7)
<b>SADT</b> 40 °C. See also Section 10.
<b>Explosion limits</b> not determined
<b>Volatile %</b> not determined

## 10. STABILITY AND REACTIVITY

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<b>Stability</b>
SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the following temperature: 40 °C. Contact with incompatible substances can cause decomposition at or below the SADT 40 °C.
To insure against possible exothermic self-accelerating decomposition, storage temperatures must not exceed emergency temperature of 35 °C.
<b>Conditions to avoid</b>
Under no circumstances should this product be exposed to temperatures above the emergency temperature of 35 °C. If the product temperature exceeds 35 °C all available means shall be used to bring the temperature under control and the emergency procedures shall be started. Emergency procedures will vary depending on conditions. Contact Akzo Nobel for assistance with developing an emergency response plan.
To maintain quality store in original closed container below: 20 °C.
Confinement must be avoided.
<b>Incompatibles</b>
Avoid contact with rust, iron and Copper. Contact with incompatible materials such as acids, alkalies, heavy metals and reducing agents will result in hazardous decomposition. Do not mix with peroxide accelerators. Use only Stainless steel 316, PVC, polyethylene or glass-lined equipment.
<b>Polymerization</b>
Polymerization does not occur.
<b>Decomposition</b>
Hazardous decomposition products; 4-tert-Butylcyclohexanol.
<b>Other information</b>
Emergency procedures will vary depending on conditions. The customer must have an emergency response plan in place. Contact Akzo Nobel for assistance with developing an emergency response plan.

## 11. TOXICOLOGICAL INFORMATION

<b>Di(4-tert-butylcyclohexyl) peroxydicarbonate</b>
<b>Acute toxicity</b>
<b>Oral LD50</b> rat:> 2000 mg/kg
<b>Irritation</b>
<b>Skin</b> Non-irritating ( 24 hours exposure time )
<b>Eye</b> Mildly irritating
<b>Genotoxicity</b> Ames test: Not mutagenic

## 12. ECOLOGICAL INFORMATION

<b>Di(4-tert-butylcyclohexyl) peroxydicarbonate</b>
<b>Ecotoxicity</b>
<b>fish</b> Acute toxicity, ( Oncorhynchus mykiss.) 96h-LC50 = 704 mg/l. No Observed Effect Concentration (NOEC) =>320 mg/l
<b>bacteria</b> Activated sludge respiration inhibition test EC50 = >1000 mg/l.

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<b>Fate</b>
<b>Degradation Biotic</b> Not readily biodegradable ( Closed bottle test ).

## 13. DISPOSAL CONSIDERATIONS

<b>Product</b> Due to the high risk of contamination recycling/recovery is not recommended. Waste disposal in accordance with regulations (most probably controlled incineration).
<b>Contaminated packaging</b> According to local regulations. Emptied container might retain product residues. Follow all warnings even after the container is emptied.
<b>Other information</b> For further advice contact manufacturer.

## 14. TRANSPORT INFORMATION

<i>Land transport (ADR/ RID) and / or DOT</i>
<b>Class</b> 5.2
<b>TREM-Card or ERG Number</b> NORTH AMERICAN ERG NO: 148
<b>UN number</b> 3114
<b>Proper Shipping Name</b> Organic peroxide type c, solid, temperature controlled ( Di(4-tert-butylcyclohexyl) peroxydicarbonate )
<b>Required labels</b> ORGANIC PEROXIDE.
EMERGENCY TEMPERATURE: 35 °C.
CONTROL TEMPERATURE: 30 °C.
The control temperature is the maximum temperature at which the formulation can be transported safely during a prolonged period of time.




<i>Sea transport (IMDG-code/ IMO)</i>
<b>Class</b> 5.2
<b>UN number</b> 3114
<b>EMS</b> F-F, S-R
<b>Marine pollutant</b> no
<b>Proper Shipping Name</b> Organic peroxide type c, solid, temperature controlled ( Di(4-tert-butylcyclohexyl) peroxydicarbonate )
<b>Other information</b> Label(s): 5.2
EMERGENCY TEMPERATURE: 35 °C.
CONTROL TEMPERATURE: 30 °C.
The control temperature is the maximum temperature at which the formulation can be transported safely during a prolonged period of time.

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Air transport (ICAO-TI/ IATA-DGR)	
<b>UN number</b>	Forbidden

## 15. REGULATORY INFORMATION

<b>Products and/or components listed below are subject to the following:</b>	
Di(4-tert-butylcyclohexyl) peroxydicarbonate	
New Jersey R-T-K Hazard. Sub.	yes
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes

<b>Hazard classes</b>				
<b>Description</b>	<b>Applicable</b>			
EPA Immediate health	yes			
EPA Delayed health	no			
EPA Fire	yes			
EPA Pressure	no			
EPA Reactive	yes			
EHS Material	no			
HMIS Hazard Rating Source	HMIS			
HMIS Health	1			
HMIS Flammability	3			
HMIS Reactivity	2			
WHMIS Hazard classes	C,D-2B,F			
				

<b>Other regulatory information</b>
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

## 16. OTHER INFORMATION

<b>History</b>
<b>Other information</b> PERKADOX: This is a registered trademark of Akzo Nobel Chemicals BV or any of its affiliated companies in one or more territories in the world.
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**Revision**

2.89

**Composed by**

N. Shoshenskiy, Regulatory Affairs - North America.J.W. Wessels - Regulatory Affairs - Europe.

**Changes were made in section**

Updated Section 15 w/ EPCRA information

The information in this material safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable as of the date of publication. However, no warranty is made as to the accuracy of and/or sufficiency of such information and/or suggestions as to the merchantability or fitness of the product for any particular purpose, or that any suggested use will not infringe any patent. Nothing in here shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. The information contained herein supersedes all previously issued bulletins on the subject matter covered. If the date on this document is more than three years old, call to make certain that this sheet is current.