PERKADOX 16

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

Product label name Di(4-tert-butylcyclohexyl) peroxydicarbonate, powder
Supplier Dorn & Hart Microedge, Inc 135 W. Home Ave Villa Park, Il 60181

Emergency telephone + 1-630-2482138 Villa Park, Il USA	**transportation emergency** Dorn & Hart Microedge, Inc. 630-248-2138

Intended use polymerization initiator
Date of last issue / Revision number 2010/07/08 / 3.01
Chemical family peroxides

2. HAZARDS IDENTIFICATION

Emergency overview **DANGER!** REFRIGERATED ORGANIC PEROXIDE - MAINTAIN COOLING HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION MAY CAUSE EYE IRRITATION Peroxides and peroxide decomposition products are flammable and can ignite with explosive forc e if confined.
Appearance white powder with faint odor.
Health effects Skin and eye contact are the primary routes of exposure to this product. Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Eye contact may cause mild irritation. If s wallowed, this product may cause irritation of the mouth, throat, esophagus and stomach.
Carcinogenicity

Description	**Applicable**
IARC	no
NTP	no
OSHA	no
ACGIH	no

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on hazardous ingredients
Chemical description Di(4-tert-butylcyclohexyl) perox ydicarbonate, powder
Composition / information on ingredients

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Number %	w/w CAS-number	Chemical name	
1 > 94	015520-11-3	Di(4-tert-butylcyclohexyl) peroxydicarbonate	

4. FIRST AID MEASURES

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. Occas ionally 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, CO2.

Unsuitable extinguishing media
halones.

Hazardous decomposition / combustion products
CO2, 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 sys tem or water courses. After a fire, ventilate thoroughly the area and soak with water, clean the walls and metallic surfaces.

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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 classes	**Rating**
Health	1
Flammability	3
Reactivity	2
Other information	

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Do not breathe dust. For personal protection see Section 8.

Environmental precautions
Do not allow to enter drains or water courses.

Methods for cleaning up
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.

Other information
CAUTION: reignition may occur. Evacuate personnel to safe area.

7. HANDLING AND STORAGE

Handling
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).

Fire and explosion prevention
Use explosion protected equipment. Keep away from sources of ignition - No smoking. Avoid dust generation. Dust explosion possible in the presence of air. Use non-sparking tools in area's where explosive dust air mixtures may occur. Do not cut or weld on or near this container even when empty.

Storage requirements
Store in accordance with local/national regulations. Keep away from food, drink and animal feedings tuffs. 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.

Storage

For maximum quality store below: 20 °C.
For safety, store below 30 °C.

Other information
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 tak e them home.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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Engineering controls
Ensure good ventilation and local exhaustion of the working area. Explosion proof ventilation recommended.

Personal protection

Respiratory
In case of dust formation use dus t mask.

Hand
Wear suitable protective gloves of neoprene or synthetic rubber.

Eye
Wear eye/face protection.

Skin and body
Wear suitable protective clothing.

Other information
Emergency-shower and facilities for rinsing eyes must be accessible. Launder clothes before reuse.

In this country no exposure limit has been established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
powder

Color
white

Odor
faint

Boiling point/range
not applicable (Decomposes)

Melting point/range
Decomposes prior to melting.

Flash point
not applicable

Flammability
Decomposition products may be flammable.

Explosive properties
no

Oxidizing properties
not applicable

Vapour pressure
<0.08 kPa (60°C / 140°F)

Density
1130 kg/m³ (20°C / 68°F)
Specific gravity = 1.13 (20°C / 68°F)

Bulk density
450-480 kg/m³ (20°C / 68°F)
Specific gravity = 0.45-0.48 (20°C / 68°F)

Solubility in water
Insoluble (20°C / 68°F)

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Solubility in other solvents Soluble with aliphatic solvents.
pH value slightly acidic
Partition coefficient n-octanol/water not determined
Relative vapour density (air=1) not applicable
Viscosity not applicable
Active oxygen content 3.8 %
Peroxide content 95 %
Autoignition temperature Test method not applicable (See Section 7)
SADT 40 °C. See also Section 10.
Explosion limits not determined
Volatile % not determined

10. STABILITY AND REACTIVITY

Stability	
	SADT - (Self accelerating decomposition temperature) is the lowes t temperature at whic h self accelerating decomposition may occur with a substance in the pack aging as us ed 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 c ause decomposition at or below the SADT 40 °C.
	To insure against possible exothermic self-accelerating decomposition, storage temperatures mus t not ex ceed emergency temperature of 35 °C.
Conditions to avoid	
	Under no circumstances should this product be exposed to temperatures above the emergency temperature of 35 °C. If the product temperature ex ceeds 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. To maintain quality store in original closed container below: 20 °C.
	Confinement must be avoided.

Incompatibles Avoid contact with rust, iron and Copper. Contact with incompatible materials such as acids, alkalis, heavy metals and reducing agents will result in hazardous decomposition. Do not mix with peroxide accelerators. Use only Stainless steel 316, PP, polyethylene or glass-lined equipment .
Polymerization Polymerization does not occur.
Hazardous decomposition products Hazardous decomposition products; 4-tert-Butylcyclohexanol.

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11. TOXICOLOGICAL INFORMATION

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

12. ECOLOGICAL INFORMATION

Di(4-tert-butylcyclohexyl) peroxydicarbonate
Ecotoxicity
fish Acute toxicity, (Oncorhynchus myk iss.) 96h-LC50 = 704 mg/l. No Observed Effect Concentration (NOEC) =>320 mg/l
bacteria Activated sludge respiration inhibition test EC50 = >1000 mg/l.
Fate
Degradation Biotic Not readily biodegradable (Closed bottle test).

13. DISPOSAL CONSIDERATIONS

Product Due to the high risk of contamination rec ycling/recovery is not recommended. Waste dispos al in accordance with regulations (mos t probably controlled incineration).
Contaminated packaging According to local regulations. Emptied container might retain product residues. Follow all warnings even after the container is emptied.
Other information For further advice contact manufacturer.

14. TRANSPORT INFORMATION

Land transport
Class 5.2
TREM-Card or ERG number NA ERG No: 148
UN number 3114

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Proper Shipping Name Organic peroxide type C, solid, temperature controlled (Di(4-tert-butylcyclohexyl) peroxydicarbonate, 95%)
Other information This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.
Required labels 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.

Sea transport (IMO / IMDG-code)
Class 5.2
UN number 3114
EMS F-F, S-R
Marine pollutant no
Proper Shipping Name Organic peroxide type C, solid, temperature controlled (Di(4-tert-butylcyclohexyl) peroxydicarbonate)
Other information
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.

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

15. REGULATORY INFORMATION

Product and or components listed below are subject of the following	
Di(4-tert-butylcyclohexyl) peroxydicarbonate	
New Jersey R-T-K Hazard. Sub.	yes
Toxic Subst. Cont. Act -listed	yes
Non-Domestic Subst.List-Canada	no
Domestic Substance List-Canada	yes
Connecticut Hazardous Material Survey yes	

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

Other regulatory information
This product has been c lassified 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

History

Other information

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.

Date of printing/
pdf file generated
2010/07/08

Revision
3.01

Composed by
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