

**1. PRODUCT AND COMPANY IDENTIFICATION**Company

Arkema Inc.  
2000 Market Street  
Philadelphia, Pennsylvania 19103

Functional Additives

Customer Service Telephone Number: (800) 331-7654  
(Monday through Friday, 8:30 AM to 5:30 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300  
(24 hrs., 7 days a week)  
Medical: Rocky Mountain Poison Center: (303) 623-5716  
(24 hrs., 7 days a week)

Product Information

Product name: DI-CUP® 40PE  
Synonyms: Dicumyl peroxide on a polypropylene carrier  
Molecular formula: [C6H5C(CH3)2O]2  
Chemical family: Dicumyl peroxide  
Product use: Initiator

**2. HAZARDS IDENTIFICATION**Emergency Overview

Color: off-white  
Physical state: solid  
Form: powder  
Odor: pungent, unpleasant

**WARNING!**  
**ORGANIC PEROXIDE.**  
**HAZARDOUS DECOMPOSITION MAY OCCUR.**  
**MAY FORM COMBUSTIBLE DUST AIR MIXTURES.**  
**MAY CAUSE RESPIRATORY TRACT IRRITATION.**

Potential Health Effects

Primary routes of exposure:  
Inhalation and skin contact.

Signs and symptoms of acute exposure:

Dust or vapor: May cause irritation of respiratory tract. (severity of effects depends on extent of exposure) Prolonged or repeated exposure may cause: irritation, nosebleeds, appearance of visible blood vessels in the nose, (based on animal studies).

Skin:

No more than slightly toxic. Slightly irritating. (vapor/dust) (based on human experience)

**Inhalation:**

No more than slightly toxic. (based on animal studies) Moderately irritating. (vapor/dust) (based on human experience)

**Eyes:**

Slightly irritating. (vapor/dust) (based on human experience)

**Ingestion:**

Slightly toxic. (based on animal studies)

**Remarks:**

Dust and/or vapor are reported to cause irritation when proper industrial hygiene controls/procedures are not used.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS-No.	Wt/Wt	OSHA Hazardous
Ethene, homopolymer	9002-88-4	60 %	N
Peroxide, bis(1-methyl-1-phenylethyl)	80-43-3	40 %	Y

The substance(s) marked with a "Y" in the Hazard column above, are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

This material is classified as hazardous under Federal OSHA regulation.

**4. FIRST AID MEASURES****Inhalation:**

If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Skin:**

In case of contact, immediately flush skin with plenty of water. Remove material from clothing. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eyes:**

Immediately flush eye(s) with plenty of water.

**Ingestion:**

If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

**5. FIRE-FIGHTING MEASURES**

Flash point	Not applicable
Auto-ignition temperature:	Not determined
Lower flammable limit (LFL):	Not determined



Upper flammable limit (UFL): Not determined

**Extinguishing media (suitable):**

Water spray, Carbon dioxide (CO<sub>2</sub>), Foam, Dry chemical

**Protective equipment:**

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

**Further firefighting advice:**

Fight fire with large amounts of water from a safe distance.  
Do not use a solid stream of water.  
A solid stream of water can cause a dust explosion.  
Cool containers / tanks with water spray.  
Cool fire exposed containers well after the fire is out to prevent possible explosions.  
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.  
Closed containers of this material may explode when subjected to heat from surrounding fire.

**Fire and explosion hazards:**

Contact with materials to avoid or exposure to temperatures exceeding the SADT may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite.  
Dust clouds generated during handling and/or storage can form explosive mixtures with air. Dust explosion characteristics vary with the particle size, particle shape, moisture content, contaminants, and other variables.  
Note: Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. As with any dry material, pouring this material or allowing it to free-fall or to be conveyed through chutes or pipes can accumulate and generate electrostatic sparks, potentially causing ignition of the material itself, or of any flammable materials which may come into contact with the material or its container.  
When burned, the following hazardous products of combustion can occur:  
Carbon oxides  
Aromatic derivatives

**6. ACCIDENTAL RELEASE MEASURES**

**In case of spill or leak:**

Stop the leak if you can do so without risk. Ventilate the area. Avoid dust formation. Wet down (dampen) the spilled material with water. Sweep or scoop up using non-sparking tools and place into suitable container for disposal. The sweepings should be wetted down further with water. Do not allow to enter drains or waterways. Dispose of promptly. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.



**7. HANDLING AND STORAGE**

**Handling**

**General information on handling:**

Contact with materials to avoid or exposure to temperatures exceeding the SADT may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite.

Keep away from heat, sparks and flames.

Avoid breathing dust.

Prevent product contamination.

Keep container tightly closed and away from combustible materials.

Avoid creating dust in handling, transfer or clean up.

Prevent dust accumulation.

Use only with adequate ventilation.

Check that all equipment is properly grounded and installed to satisfy electrical classification requirements.

Do not reuse container as it may retain hazardous product residue.

Container hazardous when empty.

Emptied container retains vapor and product residue.

Follow label warnings even after container is emptied.

RESIDUAL DUSTS MAY EXPLODE ON IGNITION.

DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.

Improper disposal or reuse of this container may be dangerous and/or illegal.

**Storage**

**General information on storage conditions:**

Outside or detached storage is preferred. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity. Ensure that all storage and handling equipment is properly grounded and installed to satisfy electrical classification requirements. Static electricity may accumulate when transferring material. All storage containers, including drums, cylinders and IBCs, must be bonded and grounded during filling and emptying operations. Store out of direct sunlight in a cool well-ventilated place. Store away from combustibles and materials to avoid. Refer also to National Fire Protection Association (NFPA) Code 432, Code for the Storage of Organic Peroxide Formulations.

**Storage stability – Remarks:**

Stable under recommended storage conditions. To maintain stability and active oxygen content, store below 86 F (30 C).

**Storage incompatibility – General:**

Store away from excessive heat, sources of ignition, and reactive materials. Store separate from:

Acids (concentrated solutions)

Strong oxidizing agents

Reducing agents

Friedel - Crafts reaction catalyst

**Temperature tolerance – Do not store above:**

86 °F (30 °C)

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Airborne Exposure Guidelines:****Particles Not Otherwise Specified / Nuisance Dust**

## US. ACGIH Threshold Limit Values

Form:	Inhalable particles.
Time Weighted Average (TWA):	10 mg/m <sup>3</sup>
Form:	Respirable particles.
Time Weighted Average (TWA):	3 mg/m <sup>3</sup>

## US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Form:	Respirable fraction.
PEL:	5 mg/m <sup>3</sup>

Remarks: All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.

Form:	Total dust.
PEL:	15 mg/m <sup>3</sup>

Remarks: All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

**Engineering controls:**

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

**Respiratory protection:**

Avoid breathing dust. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other



conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

**Skin protection:**

Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash thoroughly after handling.

**Eye protection:**

Use good industrial practice to avoid eye contact.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Color:</b>	off-white
<b>Physical state:</b>	solid
<b>Form:</b>	powder
<b>Odor:</b>	pungent, unpleasant
<b>pH:</b>	not applicable
<b>Density:</b>	not determined
<b>Specific Gravity (Relative density):</b>	not applicable
<b>Vapor pressure:</b>	not applicable
<b>Vapor density:</b>	not determined
<b>Boiling point/boiling range:</b>	not applicable
<b>Melting point/range:</b>	not determined
<b>Evaporation rate:</b>	not applicable
<b>Solubility in water:</b>	Negligible.
<b>Self-Accelerating Decomposition Temperature (SADT):</b>	196 °F (91 °C) 40 pound container Expressed as pure peroxide

**10. STABILITY AND REACTIVITY****Stability:**

This material is chemically unstable and should only be handled under specified conditions.

**Hazardous reactions:**

Hazardous polymerization does not occur.

**Materials to avoid:**

Acids  
Oxidizing agents  
Reducing agents  
Friedel - Crafts reaction catalyst

**Conditions / hazards to avoid:**

See HANDLING AND STORAGE section of this MSDS for specified conditions. SADT - Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction. This reaction will generate flammable vapors which may autoignite. The length of time to generate a decomposition reaction, after the SADT has been reached or exceeded, is dependent upon how much the SADT has been exceeded and the length of time needed for the reaction exotherm (heat spike from increasing decomposition rate) to initiate a rapid decomposition reaction. Typically, SADT is inversely proportional to package size. Larger packages will have a lower SADT due to smaller ratio to heat transfer area to volume of product.

**Hazardous decomposition products:**

Thermal decomposition giving flammable and toxic products. :

Acetophenone  
Ethane  
Methane  
Phenol  
 $\alpha$ ,  $\alpha$ -Dimethylbenzyl alcohol  
 $\alpha$ -Methylstyrene

**11. TOXICOLOGICAL INFORMATION**

Data on this material and/or its components are summarized below.

**Data for Ethene, homopolymer (9002-88-4)****Acute toxicity****Oral:**

Practically nontoxic. (rat) LD50 > 7,950 mg/kg.

**Inhalation:**

Practically nontoxic. (rat) LC50 = 75.5 mg/l.

**Repeated dose toxicity**

Intratracheal administration to animal / affected organ(s): lung / signs: fibrosis / (dust)

Dietary administration to rat and dog / No adverse effects reported.

Dietary administration to rat / affected organ(s): liver / (Solvent extracts were tested.)

Dietary administration to dog / No adverse effects reported. (Solvent extracts were tested.)

**Carcinogenicity**

Chronic implantation administration to animals / signs: tumors at the site of application / Increased incidence of tumors was reported.

Classified by the International Agency for Research on Cancer as: Group 3: Unclassifiable as to carcinogenicity in humans.

**Human experience****Inhalation:**

Upper respiratory tract: asthma. (based on reports of occupational exposure to workers) (releases from hot processing)

**Data for Peroxide, bis(1-methyl-1-phenylethyl) (80-43-3)****Acute toxicity****Oral:**

Slightly toxic. (rat) LD50 = 4,000 mg/kg.

**Dermal:**

No more than slightly toxic. (rat) LD0 = 2,000 mg/kg.

**Inhalation:**

No more than slightly toxic. (rat) 6 h LC50 > 0.224 mg/l. (40 %) (dust)

**Skin Irritation:**

Slightly irritating. (rabbit)

**Eye Irritation:**

Slightly irritating. (rabbit)

**Skin Sensitization:**

Repeated skin exposure. (guinea pig) No skin allergy was observed.

**Repeated dose toxicity**

Repeated oral administration to rat / affected organ(s): liver

Repeated inhalation administration to rat / affected organ(s): upper respiratory tract, eye / signs: irritation

Repeated inhalation administration to rabbit / affected organ(s): nose, nasal tissues / signs: irritation, changes in organ structure or function

**Genotoxicity****Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

**Human experience****Inhalation:**

Respiratory tract: irritating. Dust and/or vapor are reported to cause irritation when proper industrial hygiene controls/procedures are not used.

**Human experience****Eye contact:**

Eyes: irritating. (based on reports of occupational exposure to workers) Dust and/or vapor are reported to cause

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irritation when proper industrial hygiene controls/procedures are not used.

## 12. ECOLOGICAL INFORMATION

### Chemical Fate and Pathway

Data on this material and/or its components are summarized below.

#### Data for Peroxide, bis(1-methyl-1-phenylethyl) (80-43-3)

##### **Biodegradation:**

Not readily biodegradable. (28 d) biodegradation 0 % / OECD Guideline 301 C

Inherently biodegradable. (57 d) biodegradation 60 % / OECD Guideline 301 D

##### **Behavior in Water Treatment Plant:**

Respiration inhibition of activated sludge (No adverse effects reported.)

##### **Bioaccumulation:**

Potential to bioaccumulate 56 d BCF 137 - 1,470 (Carp)

##### **Octanol Water Partition Coefficient:**

log Pow = 3.78 (Potential to bioaccumulate)

##### **Photodegradation:**

Air reaction with OH radicals Half-life direct photolysis: 23 h

##### **Mobility and Distribution in the Environment:**

Strong adsorption / Log Koc = 3.56

### Ecotoxicology

Data on this material and/or its components are summarized below.

#### Data for Peroxide, bis(1-methyl-1-phenylethyl) (80-43-3)

##### **Aquatic toxicity data:**

Practically nontoxic. *Poecilia reticulata* (guppy) 96 h LC50 = 108 mg/l

##### **Aquatic invertebrates:**

*Daphnia* EC50 (No effect up to the limit of solubility.)

##### **Algae:**

Algae EC50 (No effect up to the limit of solubility.)

## 13. DISPOSAL CONSIDERATIONS

### **Waste disposal:**

Disposal via incineration is recommended. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

**14. TRANSPORT INFORMATION**

US Department of Transportation (DOT): not regulated

International Maritime Dangerous Goods Code (IMDG): not regulated

**15. REGULATORY INFORMATION****Chemical Inventory Status**

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	Conforms to
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	DSL	All components of this product are on the Canadian DSL list.
Japan. Kashin-Hou Law List	ENCS (JP)	Conforms to
Korea. Toxic Chemical Control Law (TCCL) List	KECI (KR)	Conforms to
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	Conforms to
China. Inventory of Existing Chemical Substances	IECSC (CN)	Conforms to
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	NZIOC	Conforms to

**United States – Federal Regulations****SARA Title III – Section 302 Extremely Hazardous Chemicals:**

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

**SARA Title III - Section 311/312 Hazard Categories:**

Acute Health Hazard, Fire Hazard, Reactivity Hazard

**SARA Title III – Section 313 Toxic Chemicals:**

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.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):**



The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

**OSHA Regulated Carcinogens (NTP, IARC, OSHA Listed):**

**NTP:**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**IARC:**

No component 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 component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**United States – State Regulations**

**Massachusetts Right to Know**

No components are subject to the Massachusetts Right to Know Act.

**New Jersey Right to Know**

<u>Chemical Name</u>	<u>CAS-No.</u>
Peroxide, bis(1-methyl-1-phenylethyl)	80-43-3

**Pennsylvania Right to Know**

<u>Chemical Name</u>	<u>CAS-No.</u>
Peroxide, bis(1-methyl-1-phenylethyl)	80-43-3
Ethene, homopolymer	9002-88-4

**California Prop. 65**

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

**16. OTHER INFORMATION**

**Latest Revision(s):**

Reference number:	00000060348
Date of Revision:	01/29/2009
Date Printed:	01/30/2009

DI-CUP® is a registered trademark of Arkema Inc.



## Material Safety Data Sheet

### DI-CUP® 40PE

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