

SAFETY DATA SHEET**KMC DHBP-C-18**

Material no.
Specification
Order Number

Version
Revision date
Print Date

1.0 / KMC
01/01/2016
02/02/2016

**1. Identification****1.1. Product identifier**

Trade name KMC DHBP-C-18

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified polymerization initiator

1.3. Details of the supplier of the safety data sheet

Company NanJing KMC Chemical Co.,Ltd

Telephone +86-25-57590439

Telefax +86-25-57590090

Email address admin@kmcchem.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC INTERNATIONAL: +86-139-1332-8988 (collect calls accepted)

Services

2. Hazards identification**2.1. Classification of the substance or mixture**

Classification according to Regulation 29CFR 1910.1200

Organic peroxides	Type E	H242
Skin irritation	Category 2	H315
Germ cell mutagenicity	Category 2	H341

2.2. Label elements

Statutory basis
Symbol(s)

Classification according to Regulation 29CFR 1910.1200



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Signal word	Warning
Hazard statement	H242 - Heating may cause a fire. H315 - Causes skin irritation. H341 - Suspected of causing genetic defects.
Precautionary statement: Prevention	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P220 - Keep/Store away from clothing/ combustible materials. P234 - Keep only in original container. P264 - Wash skin thoroughly after handling. P280 - Wear protective gloves/ eye protection/ face protection.
Precautionary statement: Reaction	P302 + P352 - IF ON SKIN: Wash with plenty of water/ soap. P308 + P313 - IF exposed or concerned: Get medical advice/ attention. P332 + P313 - If skin irritation occurs: Get medical advice/ attention. P362 - Take off contaminated clothing and wash before reuse.
Precautionary statement: Storage	P411+P235 - Store at temperatures not exceeding 30 °C. Keep cool. P410 - Protect from sunlight. P420 - Store away from other materials.
Precautionary statement: Disposal	P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards
None known.

3. Composition/information on ingredients

• **2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane** 80% - 90%

CAS-No. 78-63-7

Flammable liquids

Organic peroxides

Skin irritation

Category 4

Type C

Category 2

• **Amorphous Silica**

10% - 15%

CAS-No. 7631-86-9

Remarks Not a hazardous substance or mixture.

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**Other information**

This material is classified as hazardous under OSHA regulations.

4. First aid measures**4.1. Description of first aid measures****General advice**

Take off contaminated clothing immediately.
Never give anything by mouth to an unconscious person.
Remove from exposure, lie down.
If feeling unwell seek medical advice.

Inhalation

If inhaled remove to fresh air. If cough or other symptoms develops or persists get medical attention.

Skin contact

Wash off with soap and water.
Consult a physician in case of eye irritation.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Ingestion

DO NOT induce vomiting unless directed to do so by a physician or poison control center.
Seek medical advice immediately.
Should vomiting occur, be sure to keep victim's head below hips to avoid aspiration of vomitus into the lungs.
Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed**Symptoms**

None known +86-139-1332-8988 (collect calls accepted)

4.3. Indication of any immediate medical attention and special treatment needed

None known.

5. Fire-fighting measures**5.1. Extinguishing media**

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media: High volume water jet.

5.2. Special hazards arising from the substance or mixture

Contact with incompatible materials or exposure to temperatures exceeding the SADT may result in a self acceleration decomposition reaction with release of flammable vapors which may autoignite.
Cool closed containers exposed to fire with water spray.
Vapors can travel to a source of ignition and flash back.
Do not allow run-off from fire fighting to enter drains or water courses.

5.3. Advice for firefighters

Evacuate area and fight fire from a safe distance.
Containers near the source of fire should be cooled with a water spray to prevent contents from reaching decomposition temperature.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

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6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate personnel to safe areas. Wear a self-contained breathing apparatus and appropriate personal protective equipment. (See Section 8 - Exposure Controls/Personal Protection.)

6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, rivers, groundwater or soil.

6.3. Methods and material for containment and cleaning up

Organic Peroxide spills should be attended to immediately. Remove all sources of ignition. Avoid dispersion of dust. Contain spill. Mix with an inert material and then wet the mixture down with water. Sweep up mixture of spilled organic peroxide and inert absorbent material using non-sparking tools and place in polyethylene bags for disposal. NOTE: A supply of suitable inert absorbent should be kept available in areas where organic peroxides are used. The sweepings in the polyethylene bag should be further wetted with water and disposed of immediately by an approved disposal company. If stored for any period of time, store out of direct sunlight in a cool, well-ventilated place. After all the material has been picked up, wash down the spill area with surfactant and water to remove any traces of organic peroxide.

Additional advice

Never return spills in original containers for re-use.
Dispose of contaminated material as waste in accordance with section 13.

7. Handling and storage**7.1. Precautions for safe handling**

Avoid dust formation. Avoid breathing dust. Use only with adequate ventilation. Keep away from heat. Keep away from sparks and other sources of ignition. The need for grounding and bonding of containers in accordance with OSHA 29 CFR 1910.106 and NFPA 77 should be assessed for all product transfers. Avoid contact with skin, eyes and clothing. Do not swallow product. Use personal protective equipment. Wash thoroughly after handling. Protect from contamination (see Section 10 for materials to avoid). Dispense and transfer in an area separate from storage area. Never return unused material to storage receptacle. Wash contact areas after handling. Remove contaminated clothing and wash before reuse. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. The addition of accelerators may result in vigorous decomposition.

7.2. Conditions for safe storage, including any incompatibilities**Advice on protection against fire and explosion**

Containers exposed to temperatures exceeding the SADT (see section 10) may decompose violently. Consult with specialists to ensure design protects against these hazards.

Storage

Heat or contamination may cause hazardous decomposition.
Keep containers dry and tightly closed to avoid moisture absorption and contamination.
Keep container away from flammable and explosive substances.
Protect from heat and exposure to direct sunlight
Store in original container.

Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

Consult NFPA 400 for storage area guidance. Storage and handling designs should be arranged in consultation with a person experienced in these types of assessments.

Further information

Store below 104°F (40°C).

Peroxide residues must not be returned into the original container, danger of decomposition!

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**Advice on common storage**

Do not store together with:
acids, alkalis, reducing agents, metallic salts.

Storage stability

< 40 °C
Stable at storage temperature < 40°C.

8. Exposure controls/personal protection**8.1. Control parameters**

• Amorphous silica		
CAS-No.	7631-86-9	
Control parameters	20millions of particles per cubic foot of air	Time Weighted Average (TWA):(Z3)
Control parameters	0.8 mg/m3	Time Weighted Average (TWA):(Z3)
	The exposure limit is calculated from the equation, 80/(%SiO ₂), using a value of 100% SiO ₂ . Lower values of % SiO ₂ will give higher exposure limits.	

8.2. Exposure controls**Engineering measures**

Use process enclosures, local exhaust ventilation or other engineering controls to control airborne exposure.

Avoid accumulation of dust in ventilation ducts or on plant surfaces. Clean areas as needed.

8.3. Personal protective equipment**Respiratory protection**

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

Use impermeable gloves.

Gloves must be inspected prior to use.

Personal protective equipment that provides a barrier to prevent dermal exposure to this substance is required.

The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.

Suitability for specific workplaces should be clarified with protective glove manufacturers.

Glove material butyl rubber

Break through time > 8 hrs

Eye protection

In case of dusts: Wear tight-fitting eye protection (e.g. safety goggles)

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**Skin and body protection**

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Hygiene measures

Remove and wash contaminated clothing before re-use.

Wash contact areas after handling.

Keep away from food, drink and animal feedingstuffs.

All protective equipment that has been contaminated should be cleaned before reuse.

9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

physical state	solid
Colour	colorless
Form	solid
Odour	ether-like
Odour Threshold	not applicable
pH	no data available
Melting point/range	not applicable
Boiling point/range	not applicable decomposition
Flash point	63 °C Related to substance: 2,5-Dimethyl-2,5-di(t-butylperoxy)hexane
Evaporation rate	not applicable
Flammability (solid, gas)	not applicable
Lower explosion limit	not determined
Upper explosion limit	not determined
Vapour pressure	not determined
Relative vapour density	no data available
Density	0.51 g/cm ³ (20 °C)
Water solubility	immiscible
Partition coefficient: n-octanol/water	no data available
Autoignition temperature	Not applicable. Decomposes on heating.

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Thermal decomposition ca. 90 °C
Method: SADT (UN test H.4)
Rapid, exothermic reaction may occur above the Self Accelerated Decomposition Temperature (SADT).
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.

Viscosity, dynamic no data available

Viscosity, kinematic no data available

9.2. Other information

Explosiveness Dusts might form explosive mixtures with air.

peroxides The substance or mixture is an organic peroxide classified as type E.

Bulk density 510 kg/m³ (20 °C)

10. Stability and reactivity**10.1. Reactivity**

Stable under recommended storage conditions.

10.2. Chemical stability

Contact with incompatible substances can cause disintegration at or below SADT.

10.3. Possibility of hazardous reactions

Stability Product will not undergo hazardous polymerization.
Possibility of hazardous reactions When coming in contact with the product, impurities, decomposition catalysts, metallic salts, alkalis, reducing agents may lead to self-accelerated, exothermic decomposition and the formation of oxygen compounds.
Risk of decomposition when exposed to heat.

10.4. Conditions to avoid

Keep away from heat and sources of ignition.

10.5. Incompatible materials

Heavy metal compounds, reducing agents, Combustible material, Strong acids and strong bases, Oxidizing agents, impurities, metal ions, metallic salts, metals.

10.6. Hazardous decomposition products

Temperatures at or above the SADT can result in the release of hazardous decomposition products which are flammable and can autoignite.

In case of fire and decomposition formation of inflammable and explosive, irritant, corrosive, harmful and toxic gases and vapors possible.

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

11. Toxicological information

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**11.1. Information on toxicological effects**

carcinogenicity assessment Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.

Toxicological information on components**2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane**

Acute oral toxicity	LD50 Oral Rat: > 2000 mg/kg Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, > 90%
Acute dermal toxicity	LD50 Dermal Rabbit: 4100 mg/kg Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, 90%
Skin irritation	Irritating to skin.
Eye irritation	No eye irritation
Sensitization	Did not cause sensitisation on laboratory animals. Method: Buehler Test Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, 92,6%
Mutagenicity assessment	Not mutagenic in Ames Test.

Amorphous silica

Acute oral toxicity	LD50 Rat: > 31600 mg/kg
Acute dermal toxicity	LD50 Rabbit: > 2000 mg/kg
Repeated dose toxicity	Long term or repeated exposure to amorphous silica has caused lung effects in animals.

Di-tert-Butyl peroxide

Acute oral toxicity	LD50 Rat: 5000 mg/kg
Acute inhalation toxicity	LC50 Rat: > 22 mg/l / 4 h
Acute dermal toxicity	LD50 Rat: > 2000 mg/kg
Skin irritation	Rabbit Not a skin irritant
Eye irritation	Not an eye irritant
Sensitization	Maximisation Test (GPMT) : Not sensitizing.
Gentoxicity in vitro	Ames test Negative
Gentoxicity in vivo	Tests for mutagenic potential with various end points. positive and negative test results, literature.
Mutagenicity assessment	Substances which should be regarded as being mutagenic to man. Suspected of causing genetic defects.

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carcinogenicity assessment

Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.

CMR assessment

Mutagenicity

Positive result(s) from in vivo somatic cell mutagenicity tests supported by positive results from in vitro mutagenicity assays or chemical structure activity relationship to known germ cell mutagens

12. Ecological information**12.1. Toxicity**

Toxicity to fish

LC50 *Oryzias latipes*: 4.5 mg/l / 96 h

Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, > 90%

Toxicity in aquatic invertebrates

EC50 *Daphnia* (water flea): > 0.0065 mg/l / 504 h

Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, > 90%

NOEC *Daphnia* (water flea): > 0.0065 mg/l / 504 h

Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, > 90%

Toxicity to algae

EC50 : 6.17 mg/l / 72 h

NOEC : 1.88 mg/l / 72 h

Toxicity to bacteria

EC50 Bacteria: > 1000 mg/l / 3 h

Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, > 90%

NOEC Bacteria: > 1000 mg/l / 3 h

Test substance: 2,5-dimethyl-2,5-di(tert-butylperoxy)-hexane, > 90%

12.2. Persistence and degradability

Biodegradability

Method: Closed Bottle test
Not readily biodegradable.**12.3. Bioaccumulative potential**

Bioaccumulation

no data available

12.4. Mobility in soil

Mobility

No data available

12.5. Other adverse effects

Further Information

no data available

13. Disposal considerations**13.1. Waste treatment methods**

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**Product**

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method of disposal. Contact KMC Chemical for additional information. Empty containers must be handled with care due to product residue.

Product

RCRA Classification Reactive D003.

Uncleaned packaging

Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. Transport information**D.O.T. Road/Rail**

- | | |
|---|---|
| 14.1. UN number: | UN 3108 |
| 14.2. UN proper shipping name: | Organic peroxide type E, solid(2,5-Dimethyl-2,5-di(tert-butyl peroxy)hexane, 80%) |
| 14.3. Transport hazard class(es): | 5.2 |
| 14.4. Packinggroup: | II |
| 14.5. Environmental hazards (Marine pollutant): | -- |
| 14.6. Special precautions for user: | No |

Air transport ICAO-TI/IATA-DGR

- | | |
|-------------------------------------|---|
| 14.1. UN number: | UN 3108 |
| 14.2. UN proper shipping name: | Organic peroxide type E, solid(2,5-Dimethyl-2,5-di(tert-butyl peroxy)hexane, 80%) |
| 14.3. Transport hazard class(es): | 5.2 |
| 14.4. Packinggroup: | -- |
| 14.5. Environmental hazards: | -- |
| 14.6. Special precautions for user: | Yes |
- IATA-C: ERG-Code 5L
Must be protected from direct sunlight and stored away from all sources of heat in a well-ventilated area.
- IATA-P: ERG-Code 5L
Must be protected from direct sunlight and stored away from all sources of heat in a well-ventilated area.

Sea transport IMDG-Code/GGVSee (Germany)

- | | |
|---|---|
| 14.1. UN number: | UN 3108 |
| 14.2. UN proper shipping name: | ORGANIC PEROXIDE TYPE E, SOLID(2,5-Dimethyl-2,5-di(tert-butyl peroxy)hexane, 80%) |
| 14.3. Transport hazard class(es): | 5.2 |
| 14.4. Packinggroup: | -- |
| 14.5. Environmental hazards (Marine pollutant): | -- |
| 14.6. Special precautions for user: | Yes |
- EmS: F-J,S-R
"Separated from" acids and alkalis.
Protected from sources of heat.

- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

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for transport approval see regulatory information

15. Regulatory information**US Federal Regulations****OSHA**

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard
- Reactivity Hazard

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

International Chemical Inventory Status

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact the Product Regulatory Services Department.

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An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health :	2
Flammability :	2
Physical Hazard :	1

NFPA Ratings

Health :	2
Flammability :	2
Reactivity :	1

16. Other information**Further information**

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.