

# SAFETY DATA SHEET

## DHBP-20-IC5



Version 1.0      Revision Date: 19.02.2020      SDS Number: 600000000175      Date of last issue: -  
Date of first issue: 19.02.2020

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### SECTION 1: Identification of the hazardous chemical and of the supplier

#### Product identifier

Product name : DHBP-20-IC5

#### Recommended use of the chemical and restrictions on use

Recommended use : polymerisation initiators

#### Manufacturer or supplier's details

Company : United Initiators GmbH

Address : Dr.-Gustav-Adolph-Str. 3  
82049 Pullach 09

Telephone : +49 / 89 / 74422 – 0

Emergency telephone number : +49 / 89 / 74422 – 0 (24 h)

E-mail address : contact@united-in.com

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### SECTION 2: Hazards identification

#### Classification of the hazardous chemical

Organic peroxides : Type E

Skin corrosion/irritation : Category 2

#### Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H242 Heating may cause a fire.  
H315 Causes skin irritation.

Precautionary statements :

#### Prevention:

P210 Keep away from heat/sparks/open flames/hot surfaces.  
No smoking.

P220 Keep/Store away from clothing/ strong acids, bases,  
heavy metal salts and other reducing substances /combustible  
materials.

P234 Keep only in original container.

P280 Wear protective gloves/ eye protection/ face protection.

#### Storage:

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P411 + P235 Store at temperatures not exceeding < 40 °C/ < 104 °F. Keep cool.  
P420 Store away from other materials.

### Other hazards which do not result in classification

None known.

### SECTION 3: Composition and information of the ingredients of the hazardous chemical

Substance / Mixture : Mixture  
Chemical nature : Organic Peroxide  
Solid mixture

#### Components

Chemical name	CAS-No.	Concentration (% w/w)
2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane	78-63-7	>= 15 -< 20

### SECTION 4: First aid measures

General advice : Move out of dangerous area.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.  
Call a physician immediately.

If inhaled : If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.  
If breathed in, move person into fresh air.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Wash contaminated clothing before re-use.  
If on skin, rinse well with water.  
If on clothes, remove clothes.  
If symptoms persist, call a physician.

In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.  
Call a physician immediately.  
Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed : Causes skin irritation.

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Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing

Notes to physician : Treat symptomatically and supportively.

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### SECTION 5: Firefighting measures

#### Extinguishing media

Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

Unsuitable extinguishing media : High volume water jet

#### Physicochemical hazards arising from the chemical

Specific hazards during fire-fighting : Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.  
The product burns violently.  
Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
The product will float on water and can be reignited on surface water.  
Cool closed containers exposed to fire with water spray.

#### Special protective equipment and precautions for fire-fighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.  
Use personal protective equipment.

Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Do not use a solid water stream as it may scatter and spread fire.  
Remove undamaged containers from fire area if it is safe to do so.  
Use water spray to cool unopened containers.

Hazchem Code : 1W

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### SECTION 6: Accidental release measures

Personal precautions, protection : Use personal protective equipment.

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- tive equipment and emergency procedures      Avoid dust formation.  
Avoid breathing dust.  
Remove all sources of ignition.  
Follow safe handling advice and personal protective equipment recommendations.  
Never return spills in original containers for re-use.  
Treat recovered material as described in the section "Disposal considerations".
- Environmental precautions      :    Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up      :    Contact with incompatible substances can cause decomposition at or below SADT.  
Clear spills immediately.  
Suppress (knock down) gases/vapours/mists with a water spray jet.  
To clean the floor and all objects contaminated by this material, use plenty of water.  
Soak up with inert absorbent material.  
Isolate waste and do not reuse.  
Non-sparking tools should be used.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
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### SECTION 7: Handling and storage

#### Handling

##### Precautions for safe handling

- Technical measures      :    See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Advice on protection against fire and explosion      :    Avoid dust formation.  
Provide appropriate exhaust ventilation at places where dust is formed.  
Keep away from heat and sources of ignition.  
Use only explosion-proof equipment.  
Keep away from combustible material.
- Advice on safe handling      :    Do not swallow.  
Do not breathe vapours/dust.  
Avoid contact with skin and eyes.  
Take precautionary measures against static discharges.  
Never return any product to the container from which it was originally removed.  
Provide sufficient air exchange and/or exhaust in work rooms.  
Avoid confinement.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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Smoking, eating and drinking should be prohibited in the application area.  
Wash thoroughly after handling.  
For personal protection see section 8.  
Protect from contamination.

### Storage

#### Conditions for safe storage, including any incompatibilities

Conditions for safe storage : Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Electrical installations / working materials must comply with the technological safety standards. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Store in accordance with the particular national regulations.

Materials to avoid : Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Recommended storage temperature : < 40 °C

Further information on storage stability : No decomposition if stored normally.

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## SECTION 8: Exposure controls and personal protection

### Control parameters

Contains no substances with occupational exposure limit values.

**Appropriate engineering controls** : Minimize workplace exposure concentrations.

### Individual protection measures, such as personal protective equipment

Eye/face protection : Tightly fitting safety goggles  
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.  
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

### Hand protection

Material : butyl-rubber  
Break through time : >= 480 min  
Glove thickness : 0.5 mm

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous sub-

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stance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : Filter type P

Hygiene measures : Keep away from food and drink.  
When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and immediately after handling the product.

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### SECTION 9: Physical and chemical properties

Appearance	:	powder
Colour	:	white
Odour	:	ether-like
Odour Threshold	:	No data available
pH	:	No data available
Melting point/range	:	Decomposition: Decomposes below the melting point.
Boiling point/boiling range	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Density	:	0.42 g/cm <sup>3</sup> (20 °C)
Solubility(ies)	:	
Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-	:	No data available

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octanol/water

Self-Accelerating decomposition temperature (SADT) : 80 °C  
Method: UN-Test H.4  
SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Viscosity

Viscosity, dynamic : Not applicable

Viscosity, kinematic : Not applicable

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.  
Organic peroxide

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### SECTION 10: Stability and reactivity

Reactivity : Stable under recommended storage conditions.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Dust may form explosive mixture in air.

Conditions to avoid : Protect from contamination.  
Contact with incompatible substances can cause decomposition at or below SADT.  
Heat, flames and sparks.  
Avoid confinement.

Incompatible materials : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Hazardous decomposition products : Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

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### SECTION 11: Toxicological information

Information on likely routes of exposure : None known.

#### Acute toxicity

Not classified based on available information.

#### Components:

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 401

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Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : Method: Expert judgement  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 4,100 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

### **Skin corrosion/irritation**

Causes skin irritation.

#### **Product:**

Remarks : May cause skin irritation in susceptible persons.

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation

### **Serious eye damage/eye irritation**

Not classified based on available information.

#### **Product:**

Remarks : Product dust may be irritating to eyes, skin and respiratory system.

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

### **Respiratory or skin sensitisation**

#### **Skin sensitisation**

Not classified based on available information.

#### **Respiratory sensitisation**

Not classified based on available information.

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Does not cause skin sensitisation.



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### **Germ cell mutagenicity**

Not classified based on available information.

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Genotoxicity in vitro      :    Method: OECD Test Guideline 471  
Result: negative

Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo      :    Species: Mouse (male and female)  
Application Route: Oral  
Method: OECD Test Guideline 474  
Result: negative

### **Carcinogenicity**

Not classified based on available information.

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Remarks      :    This information is not available.

### **Reproductive toxicity**

Not classified based on available information.

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Effects on fertility      :    Remarks: No data available

Effects on foetal develop-      :    Species: Rat  
ment      Application Route: oral (gavage)  
General Toxicity Maternal: NOAEL: 300 mg/kg body weight  
Method: OECD Test Guideline 414

### **STOT - single exposure**

Not classified based on available information.

### **STOT - repeated exposure**

Not classified based on available information.

### **Repeated dose toxicity**

#### **Components:**

##### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Species      :    Rat  
NOAEL      :    200 mg/kg  
Application Route      :    Oral  
Exposure time      :    28 d

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Method : OECD Test Guideline 407

### Aspiration toxicity

Not classified based on available information.

### Further information

#### Product:

Remarks : No data available

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## SECTION 12: Ecological information

### Ecotoxicity

#### Components:

#### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 4.5 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 0.236 mg/l  
Method: OECD Test Guideline 201  
Remarks: No toxicity at the limit of solubility

NOEC (Pseudokirchneriella subcapitata (green algae)): 1.88 mg/l  
Method: OECD Test Guideline 201  
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 0.02 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211  
Remarks: No toxicity at the limit of solubility

### Ecotoxicology Assessment

Acute aquatic toxicity : No toxicity at the limit of solubility

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

### Persistence and degradability

#### Components:

#### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Biodegradability : Result: Not readily biodegradable.  
Method: OECD Test Guideline 301D

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Remarks: Not classified due to data which are conclusive although insufficient for classification.

### Bioaccumulative potential

#### Components:

#### **2,5-Dimethyl-2,5-di(tert.-butylperoxy)hexane:**

Bioaccumulation : Bioconcentration factor (BCF): 521

Partition coefficient: n-octanol/water : log Pow: 7.34

#### **Mobility in soil**

No data available

#### **Other adverse effects**

#### Product:

Additional ecological information : No data available

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## SECTION 13: Disposal information

### **Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.  
Do not burn, or use a cutting torch on, the empty drum.  
Dispose of in accordance with local regulations.

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## SECTION 14: Transport information

### **International Regulations**

#### **UNRTDG**

UN number : UN 3108  
Proper shipping name : ORGANIC PEROXIDE TYPE E, SOLID  
(2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : 5.2

#### **IATA-DGR**

UN/ID No. : UN 3108  
Proper shipping name : Organic peroxide type E, solid

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(2,5-Dimethyl-2,5-Di-(tert-butylperoxy) hexane)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : Organic Peroxides, Keep Away From Heat  
Packing instruction (cargo aircraft) : 570  
Packing instruction (passenger aircraft) : 570

### IMDG-Code

UN number : UN 3108  
Proper shipping name : ORGANIC PEROXIDE TYPE E, SOLID  
(2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : 5.2  
EmS Code : F-J, S-R  
Marine pollutant : no

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Hazchem Code : 1W

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15: Regulatory information

### Safety, health, and environmental regulations specific for the hazardous chemical

Gefahrgruppe nach § 3 BGV B4: II (German regulatory requirements)  
Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.  
Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.

### The components of this product are reported in the following inventories:

DSL (CA) : All components of this product are on the Canadian DSL  
AICS (AU) : On the inventory, or in compliance with the inventory  
ENCS (JP) : On the inventory, or in compliance with the inventory  
ISHL (JP) : On the inventory, or in compliance with the inventory  
KECI (KR) : On the inventory, or in compliance with the inventory  
PICCS (PH) : On the inventory, or in compliance with the inventory

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IECSC (CN) : On the inventory, or in compliance with the inventory

TCSI (TW) : On the inventory, or in compliance with the inventory

TSCA (US) : On TSCA Inventory

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### SECTION 16: Other information

Date format : dd.mm.yyyy

#### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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.

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