1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BCHPC

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
Emergency telephone number : +49 / 89 / 74422 – 0 (24 h)
E-mail address : contact@united-in.com

2. HAZARDS IDENTIFICATION

GHS Classification
Organic peroxides : Type C
Skin sensitisation : Category 1
Long-term (chronic) aquatic hazard : Category 3

GHS label elements
Hazard pictograms : 

Signal word : Danger
Hazard statements : H242 Heating may cause a fire.
                   H317 May cause an allergic skin reaction.
                   H412 Harmful to aquatic life with long lasting effects.

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.
                           P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
                           P272 Contaminated work clothing should not be allowed out of the workplace.
                           P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P302 + P352 If ON SKIN: Wash with plenty of soap and water.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:
P410 Protect from sunlight.
P411 + P235 Store at temperatures not exceeding < 20 °C/ < 68 °F. Keep cool.
P420 Store away from other materials.

Disposal:
P501 Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical nature</td>
<td>Organic Peroxide Solid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
</tr>
<tr>
<td>Di(4-tert-butylcyclohexyl) peroxydicarbonate</td>
</tr>
</tbody>
</table>

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.
Symptoms of poisoning may appear several hours later.
Call a physician immediately.

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.

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
SAFETY DATA SHEET

BCHPC

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.

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.

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

Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.

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.

5. FIREFIGHTING MEASURES

Suitable and unsuitable extinguishing media

Suitable extinguishing media : Water spray jet
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : 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.

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.

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment.
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.

7. HANDLING AND STORAGE

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 exposure - obtain special instructions before use.
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.
Smoking, eating and drinking should be prohibited in the application area.
Wash thoroughly after handling.
For personal protection see section 8.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Protect from contamination.

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:
< 20 °C

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters:
Contains no substances with occupational exposure limit values.

Engineering measures:
Minimize workplace exposure concentrations.

Personal protective equipment:
Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

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

Filter type:
Filter type P

Eye 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.
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 substance 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.

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

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder
Colour : white
Odour : characteristic
Odour Threshold : No data available
pH : No data available
Melting point/freezing point : 82 °C
Decomposition: Decomposes below the melting point.

Initial boiling point and boiling range : Decomposition: Decomposes below the boiling point.
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 : > 0.00001 hPa (20 °C)
SAFETY DATA SHEET

BCHPC

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
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<tr>
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<td>2019/01/17</td>
<td>600000000023</td>
<td>2017/07/05</td>
<td>2017/07/05</td>
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</tbody>
</table>

- **Bulk density**: 1,100 kg/m³ (20 °C)
- **Solubility(ies)**
  - **Water solubility**: 0.0056 g/l insoluble (5 °C)
- **Relative vapour density**: Not applicable
- **Partition coefficient: n-octanol/water**: log Pow: 8.34
- **Self-Accelerating decomposition temperature (SADT)**: 45 °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

10. STABILITY AND REACTIVITY

- **Chemical stability and possibility of hazardous reactions**: Stable under recommended storage conditions.
- **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

11. TOXICOLOGICAL INFORMATION

- **Information on likely routes of exposure**: No data available
Health hazard information

Acute toxicity

**Product:**
- **Acute oral toxicity:** LD50 (Rat): > 5,000 mg/kg  
  Method: OECD Test Guideline 401  
  Assessment: The component/mixture is minimally toxic after single ingestion.

Acute inhalation toxicity
- Remarks: No data available

Acute dermal toxicity
- Remarks: No data available

**Components:**

**Di(4-tert-butylcyclohexyl) peroxydicarbonate:**
- **Acute oral toxicity:** LD50 (Rat): > 5,000 mg/kg  
  Method: OECD Test Guideline 401  
  Assessment: The component/mixture is minimally toxic after single ingestion.

Acute inhalation toxicity
- Remarks: No data available

Acute dermal toxicity
- Remarks: No data available

Skin corrosion/irritation

**Product:**
- **Species:** Rabbit  
  Method: OECD Test Guideline 404  
  Result: No skin irritation

Remarks
- May cause skin irritation in susceptible persons.

**Components:**

**Di(4-tert-butylcyclohexyl) peroxydicarbonate:**
- **Species:** Rabbit  
  Method: OECD Test Guideline 404  
  Result: No skin irritation

Serious eye damage/eye irritation

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

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

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Product:
Species : Mouse
Method : OECD Test Guideline 429
Result : May cause sensitisation by skin contact.
Remarks : Causes sensitisation.

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Species : Mouse
Method : OECD Test Guideline 429
Result : May cause sensitisation by skin contact.

Carcinogenicity

Product:
Remarks : This information is not available.

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Remarks : This information is not available.

Germ cell mutagenicity

Product:
Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: negative
Method: OECD Test Guideline 476
Result: negative
Method: OECD Test Guideline 487
Result: negative
Genotoxicity in vivo : Remarks: No data available
Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Genotoxicity in vitro: Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 476
Result: negative

Method: OECD Test Guideline 487
Result: negative

Genotoxicity in vivo: Remarks: No data available

Reproductive toxicity

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Effects on fertility: Remarks: This information is not available.

Effects on foetal development: Remarks: This information is not available.

STOT - single exposure

Product:
Remarks: No data available

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Remarks: No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Product:
Species: Rat
NOAEL: 500 mg/kg
LOAEL: 1,000 mg/kg
Application Route: Oral
Exposure time: 28 d
Method: OECD Test Guideline 407

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Species: Rat
NOAEL: 500 mg/kg
LOAEL: 1,000 mg/kg
Application Route: Oral
Exposure time: 28 d
Method: OECD Test Guideline 407

Aspiration toxicity

Product:
No data available

Components:
Di(4-tert-butylcyclohexyl) peroxydicarbonate:
No data available

Experience with human exposure
No data available

Toxicology, Metabolism, Distribution
No data available

Neurological effects
No data available

Further information

Product:
Remarks: No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 704 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 42 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): 39 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Components:

Di(4-tert-butylcyclohexyl) peroxydicarbonate:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 704 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 42 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): 39 mg/l
Exposure time: 72 h

Persistence and degradability

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

Components:
Di(4-tert-butylcyclohexyl) peroxycarbonate:
Biodegradability: Result: Not readily biodegradable.
Method: OECD Test Guideline 301B

Bioaccumulative potential

Product:
Bioaccumulation: Bioconcentration factor (BCF): 2,926

Components:
Di(4-tert-butylcyclohexyl) peroxycarbonate:
Bioaccumulation: Bioconcentration factor (BCF): 2,926
Partition coefficient: n-octanol/water: log Pow: 8.34
Remarks: Calculation

Mobility in soil
No data available

Other adverse effects

Product:
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

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.

Disposal precautions
Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number : UN 3114
Proper shipping name : ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
(DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE)
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2

IATA-DGR
Not permitted for transport

IMDG-Code
UN number : UN 3114
Proper shipping name : ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
(DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE)
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2
EmS Code : F-F, 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.

National Regulations
Refer to section 15 for specific national regulation.

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.

15. REGULATORY INFORMATION

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing
Not applicable
Harmful Substances Required Permission for Manufacture
Not applicable

Harmful Agents to be kept below Occupational Exposure Limits
Not applicable

Harmful Agents Required to be kept below Permission Levels
Not applicable

Hazardous substances requiring management
Not applicable

Controlled Substances Subject to Environment Monitoring
Not applicable

Controlled Substances Subject to Health Examination
Not applicable

Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act

Toxic Chemicals
Not applicable

Restricted Chemicals
Not applicable

Prohibited Chemicals
Not applicable

Toxic Release Inventory
Not applicable

Accident Precaution Chemicals
Not applicable

Dangerous Substances Safety Management Act
Not Applicable to Dangerous Materials

Wastes Control Act
Industrial waste
Follow article 13 of the act to dispose the product waste

Other requirements in domestic and other countries

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

DSL : All components of this product are on the Canadian DSL
AICS : On the inventory, or in compliance with the inventory
NZIoC : On the inventory, or in compliance with the inventory
ENCS : On the inventory, or in compliance with the inventory
ISHL : On the inventory, or in compliance with the inventory
KECI : On the inventory, or in compliance with the inventory
PICCS : On the inventory, or in compliance with the inventory
16. OTHER INFORMATION

Further information

Further information

Issuing date: 2017/07/05

Revision number and date
Number of Revision: 1.1
Revision Date: 2019/01/17

Other information: This safety datasheet only contains information relating to safety and does not replace any product information or product specification. These safety instructions also apply to empty packaging which may still contain product residues.

Date format: yyyy/mm/dd

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 Pre-
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.

KR / EN