SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

EHPC-60-ENF1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
   Trade name : EHPC-60-ENF1

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Use of the Substance/Mixture : polymerisation initiators

1.3 Details of the supplier of the safety data sheet
   Company : United Initiators GmbH & Co. KG
              Dr. Gustav-Adolph-Str. 3
              D-82049 Pullach

   E-mail address of person responsible for the SDS : contact@united-in.com

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification (REGULATION (EC) No 1272/2008)
   Flammable liquids, Category 3
   H226: Flammable liquid and vapour.
   Organic peroxides, Type F
   H242: Heating may cause a fire.
   Skin irritation, Category 2
   H315: Causes skin irritation.
   Serious eye damage, Category 1
   H318: Causes serious eye damage.
   Skin sensitisation, Category 1
   H317: May cause an allergic skin reaction.
   Specific target organ toxicity - single exposure, Category 1
   H370: Causes damage to organs.

2.2 Label elements
   Labelling (REGULATION (EC) No 1272/2008)
   Hazard pictograms :
   
   Signal word : Danger
   Hazard statements : H226 Flammable liquid and vapour.
                      H242 Heating may cause a fire.
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Precautionary statements:

Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials.
P233 Keep container tightly closed.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER or doctor/ physician.
P315 Get immediate medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P411 Store at temperatures not exceeding -20 °C.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:
bis(2-ethylhexyl) peroxydicarbonate (CAS-No. 16111-62-9)
Methanol (CAS-No. 67-56-1)
t-Butyl Hydroperoxide (CAS-No. 75-91-2)

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
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Chemical nature : Organic Peroxide
                 Liquid mixture

Hazardous components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No. EC-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis(2-ethylhexyl) peroxydicarbonate</td>
<td>16111-62-9 240-282-4 01-2119964452-35</td>
<td>Flam. Liq. 3; H226 Org. Perox. C; H242 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317</td>
<td>&gt;= 55 - &lt; 65</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1 200-659-6 01-2119433307-44</td>
<td>Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370</td>
<td>&gt;= 10 - &lt; 15</td>
</tr>
<tr>
<td>t-Butyl Hydroperoxide</td>
<td>75-91-2 200-915-7 01-2119446670-40</td>
<td>Flam. Liq. 3; H226 Org. Perox. C; H242 Acute Tox. 4; H302 Acute Tox. 2; H330 Acute Tox. 3; H311 Skin Corr. 1C; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Muta. 2; H341 Aquatic Chronic 2; H411</td>
<td>&gt;= 0.25 - &lt; 1</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of 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.

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

If inhaled : Call a physician or poison control centre immediately.
             If unconscious place in recovery position and seek medical advice.
             Keep respiratory tract clear.
             Call a physician immediately.
             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.
4.2 Most important symptoms and effects, both acute and delayed

Risks:
- Causes skin irritation.
- May cause an allergic skin reaction.
- Causes serious eye damage.
- Causes damage to organs.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media:
- High volume water jet

5.2 Special hazards arising from the substance or mixture

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.
- Cool closed containers exposed to fire with water spray.
5.3 Advice for firefighters

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

Specific extinguishing methods: 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.

Further information: 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Follow safe handling advice and personal protective equipment recommendations. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Never return spills in original containers for re-use. Treat recovered material as described in the section "Disposal considerations".

6.2 Environmental precautions

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.

6.3 Methods and material for containment and cleaning up

Methods for 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.

6.4 Reference to other sections
For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

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.
- Avoid formation of aerosol.
- 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.

Advice on protection against fire and explosion:
- Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from heat and sources of ignition. Use only explosion-proof equipment. Keep away from combustible material.

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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
- 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.

Advice on common storage:
- Keep away from strong acids, bases, heavy metal salts and
Recommended storage temperature: < -15 °C

Other data: No decomposition if stored normally.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

### Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>Methanol</td>
<td>TWA</td>
<td>200 ppm</td>
<td>2006/15/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>260 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Indicative, Identifies the possibility of significant uptake through the skin</td>
<td>TWA</td>
<td>200 ppm</td>
<td>MT OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>260 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis(2-ethylhexyl) peroxydicarbonate</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>11.75 mg/m³</td>
</tr>
<tr>
<td>bis(2-ethylhexyl) peroxydicarbonate</td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>6.67 mg/kg bw/day</td>
</tr>
<tr>
<td>t-Butyl Hydroperoxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.1 mg/m³</td>
</tr>
<tr>
<td>t-Butyl Hydroperoxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>10.4 mg/m³</td>
</tr>
<tr>
<td>t-Butyl Hydroperoxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>0.83 mg/m³</td>
</tr>
<tr>
<td>t-Butyl Hydroperoxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>21.3 mg/m³</td>
</tr>
<tr>
<td>t-Butyl Hydroperoxide</td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>12.5 mg/kg bw/day</td>
</tr>
</tbody>
</table>

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compart ment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis(2-ethylhexyl) peroxydicarbonate</td>
<td>Fresh water</td>
<td>0.032 mg/l</td>
</tr>
<tr>
<td>bis(2-ethylhexyl) peroxydicarbonate</td>
<td>Marine water</td>
<td>0.0032 mg/l</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

**Engineering measures**
Minimize workplace exposure concentrations.

**Personal protective equipment**

**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.

**Respiratory protection**
- In the case of dust or aerosol formation use respirator with an approved filter.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
</tr>
<tr>
<td>Odour</td>
<td>aromatic</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>Decomposition: Decomposes below the boiling point.</td>
</tr>
<tr>
<td>Flash point</td>
<td>31 °C</td>
</tr>
<tr>
<td>Method</td>
<td>ISO 3679</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.98 g/cm³ (20 °C)</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>200 mPa.s (20 °C)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing. Organic peroxide</td>
</tr>
</tbody>
</table>

9.2 Other information

Self-Accelerating decomposition temperature (SADT): 5 °C
Method: UN-Test H.4
SADT-Self Accelerating Decomposition Temperature. Lowest
SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under recommended storage conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions: Vapours may form explosive mixture with air.

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

10.5 Incompatible materials
Materials to avoid: Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Not classified based on available information.

Product:

Acute oral toxicity: Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:

bis(2-ethylhexyl) peroxycarbonate:
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<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>MSDS Number:</th>
<th>Print Date:</th>
</tr>
</thead>
</table>

### Acute oral toxicity
- LD50 (Rat): > 2,000 mg/kg  
  Method: OECD Test Guideline 423  
  Assessment: The substance or mixture has no acute oral toxicity

### Acute dermal toxicity
- LD50 (Rabbit): > 2,000 mg/kg  
  Method: OECD Test Guideline 402  
  Assessment: The substance or mixture has no acute dermal toxicity

#### Methanol:
- **Acute oral toxicity**: Acute toxicity estimate: 300 mg/kg  
  Method: Expert judgement

#### t-Butyl Hydroperoxide:
- **Acute oral toxicity**: LD50 (Rat): 560 mg/kg  
  Method: OECD Test Guideline 401

#### Skin corrosion/irritation
- Causes skin irritation.

#### Product
- Remarks: Extremely corrosive and destructive to tissue.

### Components:
- **bis(2-ethylhexyl) peroxydicarbonate**:
  - Species: Rabbit  
  - Method: OECD Test Guideline 404  
  - Result: Skin irritation

- **Methanol**:
  - Species: Rabbit  
  - Result: No skin irritation

### t-Butyl Hydroperoxide:
- LD50 (Rat): 440 mg/kg  
  Method: OECD Test Guideline 402
Species: Rabbit
Method: Draize Test
Result: Corrosive, category 1C - where responses occur after exposures between 1 hour and 4 hours and observations up to 14 days.

Remarks: Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation**
Causes serious eye damage.

**Product:**
Remarks: May cause irreversible eye damage.

**Components:**

**bis(2-ethylhexyl) peroxydicarbonate:**
Species: Rabbit
Result: Risk of serious damage to eyes.
Remarks: Risk of serious damage to eyes.

**Methanol:**
Species: Rabbit
Result: No eye irritation

**t-Butyl Hydroperoxide:**
Species: Rabbit
Method: OECD Test Guideline 405
Result: Irreversible effects on the eye
Remarks: May cause irreversible eye damage.

**Respiratory or skin sensitisation**
Skin sensitisation: May cause an allergic skin reaction.
Respiratory sensitisation: Not classified based on available information.

**Product:**
Remarks: Causes sensitisation.

**Components:**

**bis(2-ethylhexyl) peroxydicarbonate:**
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

**Methanol:**
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

**t-Butyl Hydroperoxide:**
Species: Guinea pig
Method: OECD Test Guideline 406  
Result: May cause sensitisation by skin contact.

Remarks: Causes sensitisation.

**Germ cell mutagenicity**
Not classified based on available information.

**Components:**  
**bis(2-ethylhexyl) peroxodicarbonate:**  
Genotoxicity in vitro: Method: OECD Test Guideline 471  
Result: negative  
Genotoxicity in vivo: Method: OECD Test Guideline 487  
Result: negative  
Remarks: No data available

**Methanol:**  
Genotoxicity in vitro: Method: OECD Test Guideline 471  
Result: negative  
Genotoxicity in vivo: Species: Mouse  
Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative

**t-Butyl Hydroperoxide:**  
Genotoxicity in vitro: Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: positive  
Result: negative  
Result: positive  
Germ cell mutagenicity- Assessment: Positive results from in vitro mammalian mutagenicity assays, chemical structure activity relationship to known germ cell mutagens

**Carcinogenicity**
Not classified based on available information.

**Components:**  
**Methanol:**  
Species: Mouse  
Application Route: inhalation (vapour)  
Exposure time: 18 Months  
Method: OECD Test Guideline 453  
Result: negative
**t-Butyl Hydroperoxide:**
Species: Mouse  
Application Route: Oral  
Exposure time: 103 w  
Result: negative

**Reproductive toxicity**
Not classified based on available information.

**Components:**
**Methanol:**
Effects on fertility:
Species: Rat  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 416  
Result: negative

**t-Butyl Hydroperoxide:**
Effects on fertility:
Species: Rat  
Application Route: Oral  
General Toxicity - Parent: No observed adverse effect level: 21 mg/kg body weight  
Method: OECD Test Guideline 422

Effects on foetal development:
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level: 35 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level: 35 mg/kg body weight  
Method: OECD Test Guideline 414

**STOT - single exposure**
Causes damage to organs.

**Components:**
**Methanol:**
Assessment: Causes damage to organs.

**STOT - repeated exposure**
Not classified based on available information.

**Repeated dose toxicity**

**Components:**
**Methanol:**
Species: Rat  
NOAEL: 1.06 mg/l  
Application Route: inhalation (vapour)  
Exposure time: 90 d

Species: Monkey  
LOAEL: 2,340 mg/kg
t-Butyl Hydroperoxide:
Species: Rat
NOAEL: 21 mg/kg
Application Route: Oral
Exposure time: 45 d
Method: OECD Test Guideline 422

Species: Rat
LOAEL: 0.022 mg/l
Application Route: Inhalation
Exposure time: 28 d
Method: OECD Test Guideline 412

Aspiration toxicity
Not classified based on available information.

Further information
Product:
Remarks: Solvents may degrease the skin.

SECTION 12: Ecological information
12.1 Toxicity

Components:
bis(2-ethylhexyl) peroxydicarbonate:
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 28.3 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 9.4 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to bacteria : EC10 (Bacteria): > 20 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1.6 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

Methanol:
Toxicity to fish : NOEC (Danio rerio (zebra fish)): 3,950 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 212

Toxicity to daphnia and other aquatic invertebrates
EC50 (Daphnia magna (Water flea)): 18,260 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae
EC50 (Scenedesmus quadricauda (Green algae)): ca. 22,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to bacteria
IC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity)
NOEC: 15,800 mg/l
Exposure time: 200 h
Species: Oryzias latipes (Orange-red killifish)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
NOEC: 208 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (Cesar models), etc.

1-Butyl Hydroperoxide:

Toxicity to fish
LC50 (Pimephales promelas (fathead minnow)): 29.61 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
EC50 (Daphnia magna (Water flea)): 14.07 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae
EC50 (Pseudokirchneriella subcapitata (green algae)): 1.47 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to bacteria
EC50 (Bacteria): 17 mg/l

12.2 Persistence and degradability

Components:

bis(2-ethylhexyl) peroxydicarbonate:
Biodegradability: Result: rapidly biodegradable
Method: OECD Test Guideline 301B

Methanol:
Biodegradability: Result: Readily biodegradable
t-Butyl Hydroperoxide:
Biodegradability: Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Components:
bis(2-ethylhexyl) peroxydicarbonate:
Partition coefficient: n-octanol/water: log Pow: 2.73

Methanol:
Partition coefficient: n-octanol/water: log Pow: -0.77

t-Butyl Hydroperoxide:
Partition coefficient: n-octanol/water: log Pow: 0.85 (20 °C)

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

Product:
Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

Components:
t-Butyl Hydroperoxide:
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product: 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.

### SECTION 14: Transport information

#### 14.1 UN number

- **ADN**: UN 3119
- **ADR**: UN 3119
- **RID**: Not permitted for transport
- **IMDG**: UN 3119
- **IATA**: Not permitted for transport

#### 14.2 UN proper shipping name

- **ADN**: ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED (DI-(2-ETHYLHEXYL) PEROXYDICARBONATE)
- **ADR**: ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED (DI-(2-ETHYLHEXYL) PEROXYDICARBONATE)
- **RID**: Not permitted for transport
- **IMDG**: ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED (DI-(2-ETHYLHEXYL) PEROXYDICARBONATE)
- **IATA**: Not permitted for transport

#### 14.3 Transport hazard class(es)

- **ADN**: 5.2
- **ADR**: 5.2
- **RID**: Not permitted for transport
- **IMDG**: 5.2
- **IATA**: Not permitted for transport

#### 14.4 Packing group

- **ADN**
  - Packing group: Not assigned by regulation
  - Classification Code: P2
  - Hazard Identification Number: 539
  - Labels: 5.2

- **ADR**
  - Packing group: Not assigned by regulation
  - Classification Code: P2
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Hazard Identification Number : 539
Labels : 5.2
Tunnel restriction code : (D)
RID : Not permitted for transport
IMDG
Packing group : Not assigned by regulation
Labels : 5.2
EmS Code : F-F, S-R
IATA (Cargo) : Not permitted for transport
IATA (Passenger) : Not permitted for transport

14.5 Environmental hazards

ADN
Environmentally hazardous : no
ADR
Environmentally hazardous : no
RID : Not permitted for transport
IMDG
Marine pollutant : no

14.6 Special precautions for user
Temperature controlled transport.
Control temperature : -20 °C
Emergency temperature : -10 °C

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

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<table>
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H3
STOT SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE

<table>
<thead>
<tr>
<th>Quantity 1</th>
<th>Quantity 2</th>
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</thead>
<tbody>
<tr>
<td>50 t</td>
<td>200 t</td>
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</tbody>
</table>

P6b
SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES

<table>
<thead>
<tr>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 t</td>
<td>200 t</td>
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</tbody>
</table>

Water contaminating class (Germany): WGK 2 water endangering

Other regulations:
Gefahrengruppe nach § 3 BGV B4: III (German regulatory requirements)

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.
Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH INV (CH)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>TSCA (US)</td>
<td>On TSCA Inventory</td>
</tr>
<tr>
<td>DSL (CA)</td>
<td>All components of this product are on the Canadian DSL</td>
</tr>
<tr>
<td>AICS (AU)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>NZIoC (NZ)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>ENCS (JP)</td>
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<tr>
<td>ISHL (JP)</td>
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<tr>
<td>KECI (KR)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>PICCS (PH)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>IECSC (CN)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
</tbody>
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15.2 Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance.
For further information see eSDS.
SECTION 16: Other information

Full text of H-Statements

H225: Highly flammable liquid and vapour.
H226: Flammable liquid and vapour.
H242: Heating may cause a fire.
H301: Toxic if swallowed.
H302: Harmful if swallowed.
H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H330: Fatal if inhaled.
H331: Toxic if inhaled.
H341: Suspected of causing genetic defects.
H370: Causes damage to organs.
H411: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.: Acute toxicity
Aquatic Chronic: Chronic aquatic toxicity
Eye Dam.: Serious eye damage
Flam. Liq.: Flammable liquids
Muta.: Germ cell mutagenicity
Org. Perox.: Organic peroxides
Skin Corr.: Skin corrosion
Skin Irrit.: Skin irritation
Skin Sens.: Skin sensitisation
STOT SE: Specific target organ toxicity - single exposure

(Q)SAR - (Quantitative) Structure Activity Relationship; ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; DIN - Standard of the German Institute for Standardisation; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TRGS - Technical Rule for...
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<td>6000000000288</td>
<td>20.07.2016</td>
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Hazardous Substances; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice

Further information

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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