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

1.1 Product identifier
Trade name : DTBP
Substance name : Di-tert-butyl peroxide
Index-No. : 617-001-00-2
EC-No. : 203-733-6

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
Dr.-Gustav-Adolph-Str. 3
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 T.R. SEA No 28848
Flammable liquids, Category 2  H225: Highly flammable liquid and vapour.
Organic peroxides, Type E  H242: Heating may cause a fire.
Germ cell mutagenicity, Category 2  H341: Suspected of causing genetic defects.
Chronic aquatic toxicity, Category 3  H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements
Labelling T.R. SEA No 28848
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<tr>
<td>1.0</td>
<td>16.07.2018</td>
<td>600000000009</td>
<td>16.07.2018</td>
</tr>
</tbody>
</table>

Hazard pictograms

Signal word: Danger

Hazard statements:
- H225 Highly flammable liquid and vapour.
- H242 Heating may cause a fire.
- H341 Suspected of causing genetic defects.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
- P201 Obtain special instructions before use.
- 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/ protective clothing/ eye protection/ face protection.

Response:
- P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide for extinction.

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

3.1 Substances

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Index-No.</th>
<th>EC-No.</th>
<th>Chemical nature</th>
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<tbody>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>617-001-00-2</td>
<td>203-733-6</td>
<td>Organic Peroxide</td>
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</table>

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
</table>

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## 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. 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**: 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**: 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.

### 4.2 Most important symptoms and effects, both acute and delayed

**Risks**: Suspected of causing genetic defects.

### 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
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</table>

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. The product will float on water and can be reignited on surface water. 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".
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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 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.
- Protect from contamination.

Advice on protection against:
- Take necessary action to avoid static electricity discharge
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**fire and explosion** (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 other reducing substances.

**Recommended storage temperature**: < 40 °C

**Other data**: No decomposition if stored normally.

### 7.3 Specific end use(s)

**Specific use(s)**: For further information, refer to the product technical data sheet.

### SECTION 8: Exposure controls/personal protection

**8.1 Control parameters**

Contains no substances with occupational exposure limit values.

**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>Di-tert-butyl peroxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>20 mg/m³</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>Fresh water</td>
<td>0.144 mg/l</td>
</tr>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>Marine water</td>
<td>0.0144 mg/l</td>
</tr>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>Intermittent use/release</td>
<td>0.36 mg/l</td>
</tr>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>Fresh water sediment</td>
<td>15 mg/kg</td>
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</table>
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<table>
<thead>
<tr>
<th>Di-tert-butyl peroxide</th>
<th>Marine sediment</th>
<th>1.5 mg/kg</th>
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</thead>
<tbody>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>Sewage treatment plant</td>
<td>10 mg/l</td>
</tr>
<tr>
<td>Di-tert-butyl peroxide</td>
<td>Soil</td>
<td>2.94 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.

**Filter type**: ABEK-filter

SECTION 9: Physical and chemical properties

**9.1 Information on basic physical and chemical properties**

**Appearance**: liquid

**Colour**: colourless

**Odour**: aromatic

**Odour Threshold**: No data available

**pH**: No data available

**Melting point/freezing point**: < -25 °C
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Initial boiling point and boiling range:
- Decomposition: Decomposes below the boiling point.

Flash point:
- 0 °C
  Method: ISO 3679

Evaporation rate:
- No data available

Flammability (solid, gas):
- Not applicable

Upper explosion limit:
- No data available

Lower explosion limit:
- No data available

Vapour pressure:
- 25 hPa (20 °C)

Relative vapour density:
- No data available

Density:
- 0,79 g/cm³ (20 °C)

Solubility(ies):
- Water solubility:
  - 0,171 g/l (20 °C)
  - insoluble
- Partition coefficient: n-octanol/water:
  - log Pow: 3,2 (20 °C)

Viscosity:
- Viscosity, dynamic:
  - 0,8 mPa.s (20 °C)

Explosive properties:
- Not explosive

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

Organic peroxide

9.2 Other information

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.

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: LD50 (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat, male and female): > 22 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Components:

Di-tert-butyl peroxide:
Acute oral toxicity: LD50 (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423
DTBP

Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat, male and female): > 22 mg/l
   Exposure time: 4 h
   Test atmosphere: vapour
   Method: OECD Test Guideline 436
   Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: LD50 (Rat, male and female): > 2.000 mg/kg
   Method: OECD Test Guideline 402
   Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation
Not classified based on available information.

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

Components:
Di-tert-butyl peroxide:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation
Not classified based on available information.

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

Components:
Di-tert-butyl peroxide:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Respiratory or skin sensitisation

Skin sensitisation
Not classified based on available information.
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Respiratory sensitisation
Not classified based on available information.

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

Components:

Di-tert-butyl peroxide:
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Germ cell mutagenicity
Suspected of causing genetic defects.

Product:
Genotoxicity in vitro: Test Type: Ames test
Result: negative

Components:

Di-tert-butyl peroxide:
Genotoxicity in vitro: Method: OECD Test Guideline 471
Result: negative
Genotoxicity in vitro: Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo: Species: Rat (male)
Method: OECD Test Guideline 474
Result: negative
Species: Mouse (male)
Method: OECD Test Guideline 483
Result: negative

Germ cell mutagenicity- Assessment: Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

Carcinogenicity
Not classified based on available information.

Product:
Remarks: This information is not available.
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Components:

Di-tert-butyl peroxide:
Remarks: This information is not available.

Reproductive toxicity
Not classified based on available information.

STOT - single exposure
Not classified based on available information.

STOT - repeated exposure
Not classified based on available information.

Repeated dose toxicity

Product:
Species: Rat, male and female
NOAEL: 100 mg/kg
LOAEL: 300 mg/kg
Application Route: Oral
Exposure time: 28 d
Method: OECD Test Guideline 422

Components:

Di-tert-butyl peroxide:
Species: Rat, male and female
NOAEL: 100 mg/kg
Application Route: Oral
Method: OECD Test Guideline 422

Aspiration toxicity
Not classified based on available information.

Components:

Di-tert-butyl peroxide:
No data available

Further information

Product:
Remarks: Solvents may degrease the skin.
SECTION 12: Ecological information

12.1 Toxicity

**Product:**

Toxicity to fish: LC50 (Poecilia reticulata (guppy)): 1.000 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 73,1 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): 36 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 15 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms: EC50 (Bacteria): 1.000 mg/l  
Exposure time: 0.5 h  
Method: OECD Test Guideline 209

**Components:**

**Di-tert-butyl peroxide:**

Toxicity to fish: LC50 (Poecilia reticulata (guppy)): 1.000 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 73,1 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): 36 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 15 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms: EC50 (Bacteria): 1.000 mg/l  
Exposure time: 0.5 h  
Method: OECD Test Guideline 209
12.2 Persistence and degradability

**Product:**
Biodegradability : Result: Not readily biodegradable.

**Components:**

**Di-tert-butyl peroxide:**
Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

**Product:**
Bioaccumulation : Bioconcentration factor (BCF): 60.03

**Components:**

**Di-tert-butyl peroxide:**
Bioaccumulation : Bioconcentration factor (BCF): 60.03

Partition coefficient: n-octanol/water : log Pow: 3.2

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. Harmful 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.
Don not contaminate ponds, waterways or ditches with chemi-
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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

<table>
<thead>
<tr>
<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3107</td>
<td>UN 3107</td>
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14.2 UN proper shipping name

<table>
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<th>ADR</th>
<th>RID</th>
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<th>IATA</th>
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<tbody>
<tr>
<td>ORGANIC PEROXIDE TYPE E, LIQUID (DI-tert-BUTYL PEROXIDE)</td>
<td>ORGANIC PEROXIDE TYPE E, LIQUID (DI-tert-BUTYL PEROXIDE)</td>
<td>ORGANIC PEROXIDE TYPE E, LIQUID (DI-tert-BUTYL PEROXIDE)</td>
<td>Organic peroxide type E, liquid (Di-tert-Butyl peroxide)</td>
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14.3 Transport hazard class(es)

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<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
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14.4 Packing group

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<tbody>
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<tr>
<td>Classification Code</td>
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<tr>
<td>Labels</td>
<td>5.2</td>
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<tr>
<td>Tunnel restriction code</td>
<td>(D)</td>
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<table>
<thead>
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<tr>
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<tr>
<td>Classification Code</td>
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<tr>
<td>Hazard Identification Number</td>
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</table>

Labels : 5.2

IMDG
Packing group : Not assigned by regulation
Labels : 5.2
EmS Code : F-J, S-R

IATA (Cargo)
Packing instruction (cargo aircraft) : 570
Packing group : Not assigned by regulation
Labels : Organic Peroxides, Keep Away From Heat

IATA (Passenger)
Packing instruction (passenger aircraft) : 570
Packing group : Not assigned by regulation
Labels : Organic Peroxides, Keep Away From Heat

14.5 Environmental hazards

ADR
Environmentally hazardous : no

RID
Environmentally hazardous : no

IMDG
Marine pollutant : no

14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of Marpol 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

Ministry of Environment and Forestry; Regulation on Restriction Regarding to Manufacture, Placing on the Market and Use of Certain Hazardous Substances, Preparations and Articles. Dated 26 December 2008, Numbered 27092 (Bis).

Other regulations : Gefahrguppe nach § 3 BGV B4: Ib (German regulatory requirements)

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>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>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>ISHL (JP)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<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>
<tr>
<td>TCSI (TW)</td>
<td>On the inventory, or in compliance with the inventory</td>
</tr>
<tr>
<td>TSCA (US)</td>
<td>On TSCA Inventory</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Full text of other abbreviations

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; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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.
SAFETY DATA SHEET
According to 13 December 2014, No:29204, “Ministry of Environment and Urbanization; Regulation on Safety data sheets regarding hazardous substances and mixtures”.

DTBP

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Print Date:</th>
</tr>
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<td>16.07.2018</td>
<td>600000000009</td>
<td>16.07.2018</td>
</tr>
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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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