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

1.1 Product identifier
   Trade name : TBPEH
   REACH Registration Number : 01-2119498310-40-0000
   Substance name : tert-Butyl 2-ethylperoxyhexanoate
   EC-No. : 221-110-7

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
   Telephone : +49 / 89 / 74422 – 0
   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)
   Organic peroxides, Type C H242: Heating may cause a fire.
   Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.
   Reproductive toxicity, Category 1B H360F: May damage fertility.
   Short-term (acute) aquatic hazard, Category 1 H400: Very toxic to aquatic life.
   Long-term (chronic) aquatic hazard, Category 1 H410: Very toxic to aquatic life with long lasting effects.
2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms:
- \( \text{Danger} \)
- Heating may cause a fire.
- May cause an allergic skin reaction.
- May damage fertility.
- Very toxic to aquatic life with long lasting effects.

Precautionary statements:

**Prevention:**
- P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials.
- P233 Keep container tightly closed.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**
- P308 + P313 IF exposed or concerned: Get 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.
- P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

**Storage:**
- P411 Store at temperatures not exceeding 20 °C.

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

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

TBPEH

Version 3.0  
Revision Date: 18.09.2019  
SDS Number: 600000000001  
Date of last issue: 04.06.2019  
Date of first issue: 09.03.2016

SECTION 3: Composition/information on ingredients

3.1 Substances  
Substance name : tert-Butyl 2-ethylperoxyhexanoate  
EC-No. : 221-110-7  
Chemical nature : Organic Peroxide liquid

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl 2-ethylperoxyhexanoate</td>
<td>3006-82-4</td>
<td>221-110-7</td>
<td>&lt;= 100</td>
</tr>
</tbody>
</table>

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 : 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.

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

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 jet
                             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.
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.
- Remove all sources of ignition.
- 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
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.

- **Storage class (TRGS 510)**: 5.2, Organic peroxides and self-reacting hazardous materials

- **Recommended storage temperature**: < 10 °C

- **Further information on storage stability**: 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>tert-Butyl 2-ethylperoxyhexanoate</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>9,8 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>5,6 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 Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl 2-ethylperoxyhexanoate</td>
<td>Fresh water</td>
<td>0,0019 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0,00019 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0,0044 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>0,64 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>0,622 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0,0622 mg/kg</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**

<table>
<thead>
<tr>
<th>Material</th>
<th>Break through time</th>
<th>Glove thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>butyl-rubber</td>
<td>&gt;= 480 min</td>
<td>0,5 mm</td>
</tr>
</tbody>
</table>

**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
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: ester-like

Odour Threshold: No data available

pH: No data available

Melting point/freezing point: < -25 °C (1.013 hPa)

Initial boiling point and boiling range: Decomposition: Decomposes below the boiling point.

Flash point: 78 °C
Method: ISO 3679

Evaporation rate: No data available

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: 0.02 hPa (20 °C)

Relative vapour density: No data available

Density: 0.9 g/cm³ (20 °C)
Solubility(ies)
   Water solubility : ca. 0.05 g/l insoluble (20 °C)

Partition coefficient: n-octanol/water
   log Pow: 4.79 (20 °C)

Viscosity
   Viscosity, dynamic : 3.7 mPa.s (20 °C)

Explosive properties
   Risk of explosion by shock, friction, fire or other sources of ignition.

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

9.2 Other information

Self-Accelerating decomposition temperature (SADT) : 40 °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.

Refractive index : 1.428 at 20 °C

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 : LD0 (Rat): >= 10.000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 42,2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 16.818 mg/kg
Method: OECD Test Guideline 402

Components:
tert-Butyl 2-ethylperoxyhexanoate:
Acute oral toxicity : LD0 (Rat): >= 10.000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 42,2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 16.818 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation
Not classified based on available information.

Product:
Remarks : May cause skin irritation in susceptible persons.
Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Components:

tert-Butyl 2-ethylperoxyhexanoate:
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
Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin.

Components:

tert-Butyl 2-ethylperoxyhexanoate:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

Product:
Remarks: Causes sensitisation.
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

Components:

tert-Butyl 2-ethylperoxyhexanoate:
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.
Germ cell mutagenicity
Not classified based on available information.

**Product:**

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
<th>Method: OECD Test Guideline 471</th>
<th>Result: positive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>Method: OECD Test Guideline 476</td>
<td>Result: positive</td>
</tr>
</tbody>
</table>

Genotoxicity in vivo
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

**Components:**

**tert-Butyl 2-ethylperoxyhexanoate:**

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
<th>Method: OECD Test Guideline 471</th>
<th>Result: positive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>Method: OECD Test Guideline 476</td>
<td>Result: positive</td>
</tr>
</tbody>
</table>

Genotoxicity in vivo
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

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

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

**Components:**

**tert-Butyl 2-ethylperoxyhexanoate:**
Remarks: This information is not available.

**Reproductive toxicity**
May damage fertility.

**Product:**
Effects on fertility:
- Test Type: Reproduction/Developmental toxicity screening test
- Species: Rat
- Application Route: Oral
- General Toxicity - Parent: NOAEL: 300 mg/kg body weight
- Method: OECD Test Guideline 421

Test Type: One-generation reproduction toxicity study
- Species: Rat
- Application Route: Oral
- General Toxicity - Parent: NOAEL: 300 mg/kg body weight
- General Toxicity F1: NOAEL: 300 mg/kg body weight
- Fertility: NOAEL Mating/Fertility: 100 mg/kg body weight
- Early Embryonic Development: NOAEL F2: 300 mg/kg body weight
- Method: OECD Test Guideline 443
- GLP: yes

Effects on foetal development:
- Species: Rat
- Application Route: Oral
- Embryo-foetal toxicity: NOAEL Mating/Fertility: 1.000 mg/kg body weight
- Method: OECD Test Guideline 414

Reproductive toxicity - Assessment:
- Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

Components:

tert-Butyl 2-ethylperoxyhexanoate:

Effects on fertility:
- Test Type: Reproduction/Developmental toxicity screening test
- Species: Rat
- Application Route: Oral
- General Toxicity - Parent: NOAEL: 300 mg/kg body weight
- Method: OECD Test Guideline 421

Test Type: One-generation reproduction toxicity study
- Species: Rat
- Application Route: Oral
- General Toxicity - Parent: NOAEL: 300 mg/kg body weight
- General Toxicity F1: NOAEL: 300 mg/kg body weight
- Fertility: NOAEL Mating/Fertility: 100 mg/kg body weight
- Early Embryonic Development: NOAEL F2: 300 mg/kg body weight
- Method: OECD Test Guideline 443
- GLP: yes

Effects on foetal development:
- Species: Rat
- Application Route: Oral
Embryo-foetal toxicity: NOAEL Mating/Fertility: 1.000 mg/kg body weight
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment
Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

STOT - single exposure
Not classified based on available information.

Product:
Remarks : No data available

Components:
tert-Butyl 2-ethylperoxyhexanoate:
Remarks : No data available

STOT - repeated exposure
Not classified based on available information.

Product:
Remarks : No data available

Components:
tert-Butyl 2-ethylperoxyhexanoate:
Remarks : No data available

Repeated dose toxicity

Product:
Species : Rat, male
NOAEL : 316 mg/kg
Exposure time : 28 d
Method : OECD Test Guideline 407

Species : Rat, female
NOAEL : 100 mg/kg
Exposure time : 28 d
Method : OECD Test Guideline 407

Species : Rat
NOAEL : 450 mg/kg
Method : OECD Test Guideline 408
Components:

tert-Butyl 2-ethylperoxyhexanoate:

Species : Rat, male
NOAEL : 316 mg/kg
Exposure time : 28 d
Method : OECD Test Guideline 407

Species : Rat, female
NOAEL : 100 mg/kg
Exposure time : 28 d
Method : OECD Test Guideline 407

Species : Rat
NOAEL : 450 mg/kg
Method : OECD Test Guideline 408

Aspiration toxicity
Not classified based on available information.

Further information

Product:
Remarks : No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

tert-Butyl 2-ethylperoxyhexanoate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 8,66 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

NOEC (Poecilia reticulata (guppy)): 2,10 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7,5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 0,44 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
NOEC (Pseudokirchneriella subcapitata (green algae)): 0.018 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity): 1

Toxicity to microorganisms: EC50: 64 mg/l
Exposure time: 0.5 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC: 0.45 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

LOEC: 0.87 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity): 1

Ecotoxicology Assessment
Acute aquatic toxicity: Very toxic to aquatic life.
Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Components:
tert-Butyl 2-ethylperoxyhexanoate:
Biodegradability: Result: Biodegradable
Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

Components:
tert-Butyl 2-ethylperoxyhexanoate:
Partition coefficient: n-octanol/water: log Pow: 4.79 (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. Very 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

**ADR** : UN 3113

**RID** : UN 3113
Not permitted for transport

**IMDG** : UN 3113

**IATA** : UN 3113
Not permitted for transport

14.2 UN proper shipping name

**ADR** : ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED (tert-BUTYL PEROXY-2-ETHYLHEXANOATE)
RID : ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
Not permitted for transport

IMDG : ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
(tert-BUTYL PEROXY-2-ETHYLHEXANOATE)

IATA : ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
Not permitted for transport

14.3 Transport hazard class(es)

ADR : 5.2
RID : Not permitted for transport
IMDG : 5.2
IATA : Not permitted for transport

14.4 Packing group

ADR
Packing group : Not assigned by regulation
Classification Code : P2
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

ADR
Environmentally hazardous : yes
RID : Not permitted for transport

IMDG
Marine pollutant : yes

14.6 Special precautions for user

Additional advice:

Temperature controlled transport,: 
Control temperature : 20 °C
Emergency temperature : 25 °C
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.

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

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

REACH - List of substances subject to authorisation (Annex XIV): 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

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII): Conditions of restriction for the following entries should be considered: Number on list 3


<table>
<thead>
<tr>
<th>Entry</th>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6b</td>
<td>50 t</td>
<td>200 t</td>
</tr>
<tr>
<td>E1</td>
<td>100 t</td>
<td>200 t</td>
</tr>
</tbody>
</table>
| Water contaminating class (Germany) | WGK 2 obviously hazardous to water Code Number: 1.104 | Remarks: Classification according VvVwS, Annex 2.

Other regulations:
Gefahrgruppe nach § 3 BGV B4: Ib, S+ (German regulatory requirements)

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

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

Produkt unterliegt dem Sprengstoffgesetz (SprengG; Stoffgruppe C). (German regulatory requirements)

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
- NZIoC (NZ): 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
- 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

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 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; (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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

**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.

**Sources of key data used to compile the Safety Data Sheet**


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.

DE / EN