SAFETY DATA SHEET
Benzylpenicillin / Streptomycin Sulphate Solid Formulation

Section 1: Identification

Product name: Benzylpenicillin / Streptomycin Sulphate Solid Formulation

Manufacturer or supplier's details
Company: MSD
Address: 33 Whakatiki Street - Private Bag 908
Upper Hutt - New Zealand
Telephone: +1-908-740-4000
Emergency telephone number: +1-908-423-6000
E-mail address: EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product

Section 2: Hazard identification

GHS Classification
Acute toxicity (Oral): Category 4
Serious eye damage/eye irritation: Category 2B
Respiratory sensitisation: Category 1
Skin sensitisation: Category 1
Reproductive toxicity: Category 1A
Specific target organ toxicity - repeated exposure: Category 1 (Kidney, inner ear)

GHS label elements
Hazard pictograms:
Signal word: Danger
Hazard statements:
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H360D May damage the unborn child.
H372 Causes damage to organs (Kidney, inner ear) through prolonged or repeated exposure.

Precautionary statements:

Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:
P405 Store locked up.

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

Other hazards which do not result in classification
Contact with dust can cause mechanical irritation or drying of the skin.
May form explosive dust-air mixture during processing, handling or other means.

Section 3: Composition/information on ingredients

Substance / Mixture: Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzylpenicillin</td>
<td>61-33-6</td>
<td>&gt;= 30 - &lt; 60</td>
</tr>
<tr>
<td>Streptomycin sulphate</td>
<td>3810-74-0</td>
<td>&gt;= 30 - &lt; 60</td>
</tr>
</tbody>
</table>
Section 4: First-aid measures

General advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

If inhaled: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Harmful if swallowed. May cause an allergic skin reaction. Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May damage the unborn child. Causes damage to organs through prolonged or repeated exposure. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Contact with dust can cause mechanical irritation or drying of the skin.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

Section 5: Fire-fighting measures

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

Unsuitable extinguishing media: None known.

Specific hazards during fire-fighting: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Exposure to combustion products may be a hazard to health.

<table>
<thead>
<tr>
<th>Hazardous combustion products</th>
<th>Carbon oxides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal oxides</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific extinguishing methods</th>
<th>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use water spray to cool unopened containers.</td>
</tr>
<tr>
<td></td>
<td>Remove undamaged containers from fire area if it is safe to do so.</td>
</tr>
<tr>
<td></td>
<td>Evacuate area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special protective equipment for firefighters</th>
<th>In the event of fire, wear self-contained breathing apparatus.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazchem Code</td>
<td>2Z</td>
</tr>
</tbody>
</table>

### Section 6: Accidental release measures

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>Use personal protective equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental precautions</th>
<th>Avoid release to the environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prevent further leakage or spillage if safe to do so.</td>
</tr>
<tr>
<td></td>
<td>Retain and dispose of contaminated wash water.</td>
</tr>
<tr>
<td></td>
<td>Local authorities should be advised if significant spillages cannot be contained.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methods and materials for containment and cleaning up</th>
<th>Sweep up or vacuum up spillage and collect in suitable container for disposal.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).</td>
</tr>
<tr>
<td></td>
<td>Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.</td>
</tr>
</tbody>
</table>

### Section 7: Handling and storage

<table>
<thead>
<tr>
<th>Technical measures</th>
<th>Static electricity may accumulate and ignite suspended dust causing an explosion.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.</td>
</tr>
</tbody>
</table>

| Local/Total ventilation | If sufficient ventilation is unavailable, use with local exhaust ventilation. |

<table>
<thead>
<tr>
<th>Advice on safe handling</th>
<th>Do not get on skin or clothing.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Do not breathe dust.</td>
</tr>
<tr>
<td></td>
<td>Do not swallow.</td>
</tr>
<tr>
<td></td>
<td>Do not get in eyes.</td>
</tr>
</tbody>
</table>
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Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Keep container tightly closed. Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers. Minimize dust generation and accumulation. Keep container closed when not in use. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before re-use. The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

Conditions for safe storage: Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.

Materials to avoid: Do not store with the following product types: Strong oxidizing agents

Section 8: Exposure controls/personal protection

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzylpenicillin</td>
<td>61-33-6</td>
<td>TWA</td>
<td>2000 µg/m3 (OEB 1)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: RSEN, DSEN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wipe limit 100 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>Streptomycin sulphate</td>
<td>3810-74-0</td>
<td>TWA</td>
<td>OEB 2 (&gt;= 100 &lt; 1,000 µg/m³)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: DSEN</td>
<td></td>
</tr>
</tbody>
</table>

Engineering measures: Use feasible engineering controls to minimize exposure to compound. All engineering controls should be implemented by facility design and operated in accordance with GMP principles to
protect products, workers, and the environment.

**Personal protective equipment**

Respiratory protection: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type: Particulates type

Hand protection

Material: Chemical-resistant gloves

Eye protection: Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Skin and body protection: Work uniform or laboratory coat.

**Section 9: Physical and chemical properties**

Appearance: powder

Colour: white

Odour: odourless

Odour Threshold: No data available

pH: 6.0 - 7.5 (aqueous suspension)

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: No data available

Evaporation rate: Not applicable

Flammability (solid, gas): May form explosive dust-air mixture during processing, handling or other means.

Flammability (liquids): Not applicable

Upper explosion limit / Upper flammability limit: No data available

Lower explosion limit / Lower flammability limit: No data available

Vapour pressure: Not applicable

Relative vapour density: Not applicable
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Version 5.0  Revision Date: 27.08.2021  SDS Number: 2444696-00016  Date of last issue: 28.09.2020

Date of first issue: 13.02.2018

Relative density: No data available

Density: > 0.3 g/cm³

Solubility(ies)
Water solubility: slightly soluble

Partition coefficient: n-octanol/water: Not applicable
Auto-ignition temperature: No data available
Decomposition temperature: No data available

Viscosity
Viscosity, kinematic: Not applicable

 Explosive properties: Not explosive

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

Molecular weight: No data available

Particle size: No data available

Section 10: Stability and reactivity

Reactivity: Not classified as a reactivity hazard.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: May form explosive dust-air mixture during processing, handling or other means.
Can react with strong oxidizing agents.

Conditions to avoid: Heat, flames and sparks.
Avoid dust formation.

Incompatible materials: Oxidizing agents

Hazardous decomposition products: No hazardous decomposition products are known.

Section 11: Toxicological information

Exposure routes: Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity: Acute toxicity estimate: 1,030 mg/kg
Method: Calculation method
# Benzylpenicillin / Streptomycin Sulphate Solid Formulation

<table>
<thead>
<tr>
<th>Components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzylpenicillin:</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Acute oral toxicity | LD50 (Rat): 8,000 mg/kg  
LD50 (Mouse): > 5,000 mg/kg |
| Acute toxicity (other routes of administration) | LD50 (Mouse): 3,500 mg/kg  
Application Route: Intraperitoneal  
LD50 (Mouse): 329 mg/kg  
Application Route: Intravenous |

| **Streptomycin sulphate:** |  |
| Acute oral toxicity | LD50 (Hamster): 400 mg/kg  
LD50 (Rat): 430 mg/kg  
LD50 (Mouse): 25,000 mg/kg |
| Acute toxicity (other routes of administration) | LD50 (Mouse): 85 - 111 mg/kg  
Application Route: Intravenous  
LD50 (Mouse): 575 - 610 mg/kg  
Application Route: Intraperitoneal  
LD50 (Mouse): 500 - 600 mg/kg  
Application Route: Subcutaneous  
TDLo (Dog): 220 - 440 mg/kg  
Application Route: Intravenous  
Symptoms: Lowered blood pressure  
LDLo (Monkey): 110 mg/kg  
Application Route: Intravenous  
TDLo (Monkey): 30 - 70 mg/kg  
Application Route: Subcutaneous  
Symptoms: respiratory depression |

**Skin corrosion/irritation**  
Not classified based on available information.

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

<table>
<thead>
<tr>
<th>Components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Streptomycin sulphate:</strong></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>Mild eye irritation</td>
</tr>
</tbody>
</table>
**Respiratory or skin sensitisation**

**Skin sensitisation**
- May cause an allergic skin reaction.

**Respiratory sensitisation**
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Components:**

**Benzylpenicillin:**
<table>
<thead>
<tr>
<th>Test Type</th>
<th>Local lymph node assay (LLNA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure routes</td>
<td>Dermal</td>
</tr>
<tr>
<td>Species</td>
<td>Mouse</td>
</tr>
<tr>
<td>Result</td>
<td>Weak sensitizer</td>
</tr>
<tr>
<td></td>
<td>Maximisation Test</td>
</tr>
<tr>
<td></td>
<td>Dermal</td>
</tr>
<tr>
<td></td>
<td>Guinea pig</td>
</tr>
<tr>
<td></td>
<td>positive</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td></td>
<td>Strong sensitizer</td>
</tr>
<tr>
<td></td>
<td>Based on human experience.</td>
</tr>
</tbody>
</table>

**Streptomycin sulphate:**
<table>
<thead>
<tr>
<th>Test Type</th>
<th>Human repeat insult patch test (HRIPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure routes</td>
<td>Dermal</td>
</tr>
<tr>
<td>Species</td>
<td>Humans</td>
</tr>
<tr>
<td>Result</td>
<td>Weak sensitizer</td>
</tr>
</tbody>
</table>

**Chronic toxicity**

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

**Components:**

**Benzylpenicillin:**
- Germ cell mutagenicity - Assessment: Weight of evidence does not support classification as a germ cell mutagen.

**Streptomycin sulphate:**
- Genotoxicity in vitro: Test Type: Chromosomal aberration
  - Result: equivocal
- Genotoxicity in vivo: Test Type: Chromosomal aberration
  - Cell type: Human lymphocytes
  - Result: negative

**Carcinogenicity**
- Not classified based on available information.
Components:

Streptomycin sulphate:
- **Species**: Rat
- **Application Route**: Oral
- **NOAEL**: 5 mg/kg body weight
- **Result**: negative

Carcinogenicity - Assessment: Weight of evidence does not support classification as a carcinogen

Reproductive toxicity
- May damage the unborn child.

Components:

Benzylpenicillin:
- **Effects on fertility**: Test Type: Fertility
  - Species: Mouse
  - Result: No effects on fertility
- Test Type: Fertility
  - Species: Rat
  - Result: No effects on fertility
- Test Type: Fertility
  - Species: Rabbit
  - Result: No effects on fertility

Effects on foetal development:
- Test Type: Development
  - Species: Mouse
  - Result: No effects on foetal development
- Test Type: Development
  - Species: Rat
  - Result: No effects on foetal development
- Test Type: Development
  - Species: Rabbit
  - Result: No effects on foetal development

Streptomycin sulphate:
- **Effects on fertility**: Test Type: Fertility
  - Application Route: Intraperitoneal
  - Fertility: LOAEL: 40 mg/kg body weight
  - Symptoms: male reproductive effects
- **Effects on foetal development**: Test Type: Development
  - Application Route: Intraperitoneal
  - Developmental Toxicity: LOAEL: 250 mg/kg body weight
  - Symptoms: fetal deafness, Embryo-fetal toxicity
Test Type: Development
Species: Rabbit
Application Route: Oral
Developmental Toxicity: NOAEL: 10 mg/kg body weight
Result: No teratogenic effects

Reproductive toxicity - Assessment: May damage the unborn child.

STOT - single exposure
Not classified based on available information.

STOT - repeated exposure
Causes damage to organs (Kidney, inner ear) through prolonged or repeated exposure.

Components:
Streptomycin sulphate:
Target Organs: Kidney, inner ear
Assessment: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity
Components:
Streptomycin sulphate:
Species: Rat
NOAEL: 100 mg/kg
Application Route: Subcutaneous
Exposure time: 72 Days
Remarks: No significant adverse effects were reported

Species: Cat
LOAEL: 200 mg/kg
Application Route: Oral
Exposure time: 90 Days
Target Organs: inner ear

Species: Dog
LOAEL: 44 mg/kg
Application Route: Intramuscular
Exposure time: 14 Days
Target Organs: inner ear

Species: Dog
LOAEL: 50 - 100 mg/kg
Application Route: Intramuscular
Exposure time: 20 Days
Target Organs: inner ear, Kidney
Symptoms: ataxia

Species: Monkey
**SAFETY DATA SHEET**

**Benzylpenicillin / Streptomycin Sulphate Solid Formulation**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue: 28.09.2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>27.08.2021</td>
<td>2444696-00016</td>
<td>Date of first issue: 13.02.2018</td>
</tr>
</tbody>
</table>

- **NOAEL**: 50 mg/kg
- **LOAEL**: 100 mg/kg
- **Application Route**: Intramuscular
- **Exposure time**: 5 Days
- **Target Organs**: Liver, Kidney

- **Species**: Rat
- **NOAEL**: 5 mg/kg
- **Application Route**: Oral
- **Exposure time**: 2 yr
- **Remarks**: No significant adverse effects were reported

- **Species**: Monkey
- **LOAEL**: 25 mg/kg
- **Application Route**: Subcutaneous
- **Exposure time**: 66 Days
- **Target Organs**: Blood, Liver, Kidney
- **Symptoms**: anemia

**Aspiration toxicity**
- Not classified based on available information.

**Experience with human exposure**

**Components:**

**Benzylpenicillin:**
- **Inhalation**: Symptoms: Allergic reactions, Abdominal pain, bronchospasm, skin rash

**Streptomycin sulphate:**
- **Inhalation**: Target Organs: inner ear
  - Symptoms: hearing loss
  - Target Organs: Kidney
  - Symptoms: hearing loss
- **Skin contact**: Symptoms: skin rash

**Section 12: Ecological information**

**Ecotoxicity**

**Components:**

**Benzylpenicillin:**
- **Toxicity to fish**: LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
  - Method: OECD Test Guideline 203
  - Exposure time: 96 hrs
  - Remarks: Based on data from similar materials

- **Toxicity to daphnia and other aquatic invertebrates**: EC50 (Daphnia magna (Water flea)): 3.6 mg/l
  - Method: OECD Test Guideline 202
  - Exposure time: 48 hrs
  - Remarks: Based on data from similar materials
## Toxicity to algae/aquatic plants

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Exposure Time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 (Raphidocelis subcapitata (freshwater green alga))</td>
<td>&gt; 100 mg/l</td>
<td>72 hrs</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>NOEC (Raphidocelis subcapitata (freshwater green alga))</td>
<td>50 mg/l</td>
<td>72 hrs</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>EC50 (blue-green algae)</td>
<td>0.74 mg/l</td>
<td>72 hrs</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>NOEC (blue-green algae)</td>
<td>0.14 mg/l</td>
<td>72 hrs</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

## Toxicity to microorganisms

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Exposure Time</th>
<th>Test Type</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50</td>
<td>&gt; 500 mg/l</td>
<td>3 h</td>
<td>Respiration inhibition</td>
<td>OECD Test Guideline 209</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>NOEC</td>
<td>5 mg/l</td>
<td>3 h</td>
<td>Respiration inhibition</td>
<td>OECD Test Guideline 209</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

## Streptomycin sulphate

**Toxicity to daphnia and other aquatic invertebrates**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Exposure Time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 (Daphnia magna (Water flea))</td>
<td>487 mg/l</td>
<td>48 h</td>
<td>OECD Test Guideline 202</td>
</tr>
</tbody>
</table>

**Toxicity to algae/aquatic plants**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Exposure Time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 (Microcystis aeruginosa (blue-green algae))</td>
<td>0.007 mg/l</td>
<td>72 h</td>
<td>ISO 8692</td>
</tr>
<tr>
<td>EC50 (Selenastrum capricornutum (green algae))</td>
<td>0.133 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 201</td>
</tr>
</tbody>
</table>

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Exposure Time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEC (Daphnia magna (Water flea))</td>
<td>32 mg/l</td>
<td>21 d</td>
<td>OECD Test Guideline 211</td>
</tr>
</tbody>
</table>
Persistence and degradability

Components:

Benzylpenicillin:

Biodegradability

Result: Readily biodegradable.
Biodegradation: 70.10%
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Benzylpenicillin:

Partition coefficient: n-octanol/water

log Pow: 1.83

Streptomycin sulphate:

Partition coefficient: n-octanol/water

log Pow: -3.2

Mobility in soil

No data available

Other adverse effects

No data available

Section 13: Disposal considerations

Disposal methods

Waste from residues: Dispose of in accordance with local regulations.
Contaminated packaging:
Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

Section 14: Transport information

International Regulations

UNRTDG
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Streptomycin sulphate, Benzylpenicillin)

Class: 9
Packing group: III
Labels: 9

IATA-DGR
UN/ID No.: UN 3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Streptomycin sulphate, Benzylpenicillin)
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Class: 9
Packing group: III
Labels: Miscellaneous
Packing instruction (cargo aircraft): 956
Packing instruction (passenger aircraft): 956
Environmentally hazardous: yes

IMDG-Code
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Streptomycin sulphate, Benzylpenicillin)

Class: 9
Packing group: III
Labels: 9
EmS Code: F-A, S-F
Marine pollutant: yes

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

National Regulations

NZS 5433
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Streptomycin sulphate, Benzylpenicillin)

Class: 9
Packing group: III
Labels: 9
Hazchem Code: 2Z

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

Section 15: Regulatory information

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

HSNO Approval Number
HSR100759 Veterinary Medicines Non dispersive Open System Application Group Standard 2017

HSW Controls
Certified handler certificate not required.
Tracking hazardous substance not required.
Refer to the Health and Safety at Work (Hazardous Substances) Regulations 2017, for further information.
The components of this product are reported in the following inventories:

- **AICS**: not determined
- **DSL**: not determined
- **IECSC**: not determined

**Section 16: Other information**

**Further information**

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

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format: dd.mm.yyyy

**Full text of other abbreviations**

- **AIC**: Australian Inventory of Industrial Chemicals; **ANTT**: National Agency for Transport by Land of Brazil; **ASTM**: American Society for the Testing of Materials; **bw**: Body weight; **CMR**: Carcinogen, Mutagen or Reproductive Toxicant; **DIN**: Standard of the German Institute for Standardisation; **DSL**: Domestic Substances List (Canada); **EC**: Concentration associated with x% response; **EL**: Loading rate associated with x% response; **EmS**: Emergency Schedule; **ENCS**: Existing and New Chemical Substances (Japan); **ErC**: Concentration associated with x% growth rate response; **ERG**: Emergency Response Guide; **GHS**: Globally Harmonized System; **GLP**: Good Laboratory Practice; **IARC**: International Agency for Research on Cancer; **IATA**: International Air Transport Association; **IBC**: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; **IC50**: Half maximal inhibitory concentration; **ICAO**: International Civil Aviation Organization; **IECSC**: Inventory of Existing Chemical Substances in China; **IMDG**: International Maritime Dangerous Goods; **IMO**: International Maritime Organization; **ISHL**: Industrial Safety and Health Law (Japan); **ISO**: International Organisation for Standardisation; **KECI**: Korea Existing Chemicals Inventory; **LC50**: Lethal Concentration to 50% of a test population; **LD50**: Lethal Dose to 50% of a test population (Median Lethal Dose); **MARPOL**: International Convention for the Prevention of Pollution from Ships; **n.o.s.**: Not Otherwise Specified; **Nch**: Chilean Norm; **NO(A)EC**: No Observed (Adverse) Effect Concentration; **NO(A)EL**: No Observed (Adverse) Effect Level; **NOELR**: No Observable Effect Loading Rate; **NOM**: Official Mexican Norm; **NTP**: National Toxicology Program; **NZIoC**: New Zealand Inventory of Chemicals; **OECD**: Organization for Economic Co-operation and Development; **OPPTS**: Office of Chemical Safety and Pollution Prevention; **PBT**: Persistent, Bioaccumulative and Toxic substance; **PICCS**: Philippines Inventory of Chemicals and Chemical Substances; **(Q)SAR**: (Quantitative) Structure Activity Relationship; **REACH**: Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; **SADT**: Self-Accelerating Decomposition Temperature; **SDS**: Safety Data Sheet; **TCSI**: Taiwan Chemical Substance Inventory; **TDG**: Transport of Dangerous Goods; **TECI**: Thailand Existing Chemicals Inventory; **TSCA**: Toxic Substances Control Act (United States); **UN**: United Nations; **UNRTDG**: United Nations Recom-
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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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.

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