# SAFETY DATA SHEET

**Bleomycin (sulfate)**

### 1. Product and Company Identification

<table>
<thead>
<tr>
<th><strong>Product Code:</strong></th>
<th>13877</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Name:</strong></td>
<td>Bleomycin (sulfate)</td>
</tr>
<tr>
<td><strong>Company Name:</strong></td>
<td>Cayman Chemical Company</td>
</tr>
<tr>
<td></td>
<td>1180 E. Ellsworth Rd.</td>
</tr>
<tr>
<td></td>
<td>Ann Arbor, MI 48108</td>
</tr>
<tr>
<td><strong>Web site address:</strong></td>
<td><a href="http://www.caymanchem.com">www.caymanchem.com</a></td>
</tr>
<tr>
<td><strong>Emergency Contact:</strong></td>
<td>CHEMTREC Within USA and Canada: +1 (800)424-9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC Outside USA and Canada: +1 (703)527-3887</td>
</tr>
<tr>
<td><strong>Information:</strong></td>
<td>Cayman Chemical Company +1 (734)971-3335</td>
</tr>
<tr>
<td><strong>Intended Use:</strong></td>
<td>For research use only, not for human or veterinary use.</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>bleomycin sulfate (salt); Blenoxane;</td>
</tr>
</tbody>
</table>

### 2. Hazards Identification

- **Acute Toxicity: Inhalation, Category 3**
- **Acute Toxicity: Oral, Category 3**
- **Acute Toxicity: Skin, Category 3**
- **Skin Corrosion/Irritation, Category 2**
- **Serious Eye Damage/Eye Irritation, Category 2A**
- **Germ Cell Mutagenicity, Category 1B**
- **Carcinogenicity, Category 2**
- **Toxic To Reproduction, Category 1B**
- **Specific Target Organ Toxicity (single exposure), Category 3**

**GHS Signal Word:** Danger

**GHS Hazard Phrases:**
- H331: Toxic if inhaled.
- H301: Toxic if swallowed.
- H311: Toxic in contact with skin.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H340: May cause genetic defects.
- H351: Suspected of causing cancer.
- H360: May damage fertility or the unborn child.
- H335: May cause respiratory irritation.

**GHS Precaution Phrases:**
- P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.
- P264: Wash (hands) thoroughly after handling.
- P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
- P361+364: Take off immediately all contaminated clothing and wash it before reuse.
- P362+364: Take off contaminated clothing and wash it before reuse.
- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P281: Use personal protective equipment as required.

**GHS Response Phrases:**
- P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P311: Call a {POISON CENTER/doctor/...}.
- P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P330: Rinse mouth.
- P302+352: IF ON SKIN: Wash with plenty of soap and water.
P312: Call a POISON CENTER/doctor/... if you feel unwell.
P321: Specific treatment (see ... on this label).
P332+313: If skin irritation occurs, get medical advice/attention.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P308+313: IF exposed or concerned: Get medical attention/advice.
P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.

GHS Storage and Disposal

Phrases:

Potential Health Effects (Acute and Chronic):

Causes serious eye irritation.
Causes skin irritation.
Material may be irritating to the mucous membranes and upper respiratory tract.
May cause genetic defects.
May cause respiratory system irritation.
May damage fertility or the unborn child.
Suspected of causing cancer.
Toxic if swallowed, in contact with skin or if inhaled.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Concentration</th>
<th>RTECS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>9041-93-4</td>
<td>Bleomycin (sulfate)</td>
<td>100.0 %</td>
<td>EC5991990</td>
</tr>
</tbody>
</table>

4. First Aid Measures

Emergency and First Aid Procedures:

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

Signs and Symptoms Of Exposure: Exposure may cause: alopecia, anorexia, confusion, fever, headache, lowered blood pressure, nausea, vomiting.
5. Fire Fighting Measures

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Autoignition Pt: No data.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.
Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Flammable Properties and Hazards:
No data available.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: Avoid raising and breathing dust, and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.
Steps To Be Taken In Case Material Is Released Or Spilled: Contain spill and collect, as appropriate.

7. Handling and Storage

Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.
Precautions To Be Taken in Storing: Keep container tightly closed.
Store in accordance with information listed on the product insert.

8. Exposure Controls/Personal Protection

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9041-93-4</td>
<td>Bleomycin (sulfate)</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
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</table>

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Eye Protection: Safety glasses
Protective Gloves: Compatible chemical-resistant gloves
Other Protective Clothing: Lab coat
Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Work/Hygienic/Maintenance Practices: Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower. Wash thoroughly after handling.
9. Physical and Chemical Properties

- **Physical States**: [ ] Gas       [ ] Liquid       [ X ] Solid
- **Appearance and Odor**: A crystalline solid
- **Melting Point**: No data.
- **Boiling Point**: No data.
- **Flash Pt**: No data.
- **Evaporation Rate**: No data.
- **Flammability (solid, gas)**: No data available.
- **Explosive Limits**: LEL: No data.                                    UEL: No data.
- **Vapor Pressure (vs. Air or mm Hg)**: No data.
- **Vapor Density (vs. Air = 1)**: No data.
- **Specific Gravity (Water = 1)**: No data.
- **Solubility in Water**: No data.
- **Solubility Notes**: ~10 mg/ml in PBS (pH 7.2); ~13 mg/ml in DMSO; ~2 mg/ml in DMF;
- **Percent Volatile**: No data.
- **Autoignition Pt**: No data.
- **Molecular Formula & Weight**: C55H84N17O21S3 • XH2SO4         1513.6

10. Stability and Reactivity

- **Stability**: Unstable [ ]       Stable [ X ]
- **Conditions To Avoid**: No data available.
- **Incompatibility - Materials To Avoid**: strong oxidizing agents
- **Hazardous Decomposition or Byproducts**: No data available.
- **Polymerization**: Will occur [ ]       Will not occur [ X ]
- **Stability Note(s)**: Stable if stored in accordance with information listed on the product insert.

11. Toxicological Information

- **Toxicological Information**: The toxicological effects of this product have not been thoroughly studied.
- **Bleomycin (sulfate) - Toxicity Data**: Subcutaneous LD50 (rat): 86 mg/kg; Intraperitoneal LD50 (rat): 240 mg/kg;
- **Chronic Toxicological Effects**: Bleomycin (sulfate) - Investigated as a reproductive effector.
  Laboratory experiments have shown mutagenic effects.
  Limited evidence of carcinogenicity in animal studies.
  Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.
  See actual entry in RTECS for complete information.
  Bleomycin (sulfate) RTECS Number: EC5991990
- **Carcinogenicity/Other Information**: IARC: Group 2B: Possible human carcinogen (Bleomycin (sulfate))

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<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
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<tr>
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<td>n.a.</td>
<td>2B</td>
<td>n.a.</td>
<td>n.a.</td>
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12. Ecological Information

General Ecological Information: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT):
- DOT Proper Shipping Name: Not dangerous goods.
- DOT Hazard Class: 
- UN/NA Number: 

LAND TRANSPORT (European ADR/RID):
- ADR/RID Shipping Name: Not dangerous goods.
- UN Number: 
- Hazard Class:

AIR TRANSPORT (ICAO/IATA):
- ICAO/IATA Shipping Name: Not dangerous goods.

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>S. 302 (EHS)</th>
<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
</tr>
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<tbody>
<tr>
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<th>CAS #</th>
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<th>Other US EPA or State Lists</th>
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<tr>
<td>9041-93-4</td>
<td>Bleomycin (sulfate)</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No</td>
</tr>
</tbody>
</table>

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

16. Other Information

Revision Date: 06/06/2016

Additional Information About This Product: No data available.

Company Policy or Disclaimer: DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.