1. **IDENTIFICATION**
   - **Product Identifier**: Polymyxin B Sulfate
   - **Product Number**: P007
   - **Distributor Name**: TOKU-E Company
   - **Distributor Address**: 715 W Orchard Dr, Suite 3
   - **Bellingham, WA 98225**
   - **Phone Number**: (360) 734-1789
   - **Emergency Phone Number (US only)**: 1 (800) 535-5053
   - **Emergency Phone Number (International)**: +1 (352) 323-3500
   - **Safety Data Sheet Issued by**: TOKU-E USA
   - **CAS-Number**: [1405-20-5]
   - **Recommended Use**: Polypeptide antibiotic for research use. Targets at alters permeability of lipopolysaccharide (LPS) of gram negative bacteria, leading to lysing of the cell.

   **Restrictions on Use**: Not for human or animal use

2. **HAZARD(S) IDENTIFICATION**
   - **OSHA Hazards**: Harmful by Ingestion
   - **GHS Classification**: Acute Toxicity, Oral (Category 4)
   - **GHS Label Elements, Including Pictograms**:
     - Signal Word: Warning
   - **Hazard Statements**: H302: Harmful if swallowed
   - **Precautionary Statements**: P270: Do not eat, drink, or smoke when using this product
   - **P301+P312**: IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell
   - **P330**: Rinse mouth
   - **P501**: Dispose of contents/container to an approved waste disposal plant

   **Potential Health Effects**:
   - **Inhalation**: May be harmful if inhaled. May cause respiratory tract irritation
   - **Skin**: Harmful if absorbed through the skin. May cause skin irritation
   - **Eyes**: May cause eye irritation
   - **Ingestion**: Harmful if swallowed
3. COMPOSITION/INFORMATION ON INGREDIENTS
   Synonym(s) None
   Formula \( \text{C}_{55}\text{H}_{96}\text{N}_{16}\text{O}_{13}\cdot 2\text{H}_2\text{SO}_4 \)
   Molecular Weight 1385.61 g/mol
   CAS-No. [1405-20-5]
   EC-No. [215-774-7]

4. FIRST-AID MEASURES
   General Advice Consult a physician. Show this Safety Data Sheet to the medical provider
   If Inhaled If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a doctor
   In Case of Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, consult a doctor
   If Swallowed Never give anything by mouth to an unconscious person. Consult a doctor. Rinse mouth with water.

5. FIRE-FIGHTING MEASURES
   Conditions of Flammability Not flammable or combustible
   Suitable Extinguishing Media Water spray, alcohol-resistant foam, dry chemical, carbon dioxide
   Special Protective Equipment for Firefighters Wear self-contained breathing apparatus
   Hazardous Combustion Products Formed under fire conditions: Carbon, Nitrogen, and Sulfur oxides

6. ACCIDENTAL RELEASE MEASURES
   General Evacuate personnel to safe location
   Personal Precautions Wear respiratory protection. Avoid dust formation and breathing vapors/mist/dust/gas. Ensure adequate ventilation
   Environmental Precautions Prevent spillage, do not let product enter drains
   Methods of Containment and Cleanup Place in suitable, closed containers for licensed disposal. Avoid dust formation

7. HANDLING AND STORAGE
   Precautions for Safe Handling Avoid contact with skin and eyes. Provide exhaust ventilation in areas where dust if formed
   Precautions for Safe Storage Keep container tightly closed and in a dry, well-ventilated place. Recommended storage temperature: 2-8°C.
   Incompatibilities None known
8. **EXPOSURE CONTROLS/ PERSONAL PROTECTION**

Contains no substances with occupational exposure limit values

**PPE: Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

**PPE: Hand Protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal techniques to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices, and wash and dry hands.

**PPE: Eye Protection**

Use a face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**PPE: Skin and Body Protection**

When deemed needed according to the concentration and amount of this product, use a complete body suit.

9. **PHYSICAL/CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White powder</td>
</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>217-220°C</td>
</tr>
<tr>
<td>Boiling Point</td>
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<tr>
<td>Flash Point</td>
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</tr>
<tr>
<td>Ignition Temperature</td>
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<tr>
<td>Autoignition Temperature</td>
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</tr>
<tr>
<td>Lower Explosion Limit</td>
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</tr>
<tr>
<td>Upper Explosion Limit</td>
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</tr>
<tr>
<td>Vapor Pressure</td>
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</tr>
<tr>
<td>Density</td>
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<tr>
<td>Water Solubility</td>
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</tr>
<tr>
<td>Solubility in Other Solvents</td>
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</tr>
<tr>
<td>Partition Coefficient: n-octanol/water</td>
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<tr>
<td>Relative vapor density</td>
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</tr>
<tr>
<td>Odor</td>
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</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY
- **Chemical Stability**: Stable under recommended storage conditions
- **Possibility of Hazardous Reactions**: No data available
- **Conditions to Avoid**: No data available
- **Materials to Avoid**: Strong oxidizing agents
- **Hazardous Decomposition Products**: Carbon, Nitrogen, and Sulfur oxides formed under fire conditions

11. TOXICOLOGICAL INFORMATION
- **Oral LD₅₀**: Rat: 790 mg/kg
- **Inhalation LC₅₀**: No data available
- **Dermal LD₅₀**: No data available
- **Intraperitoneal LD₅₀**: Mouse: 20.5 mg/kg
- **Intravenous LD₅₀**: Mouse: 5.4 mg/kg
- **Skin Corrosion/Irritation**: No data available
- **Serious Eye Damage/ Eye Irritation**: No data available
- **Respiratory or Skin Sensitization**: No data available
- **Germ Cell Mutagenicity**: No data available
- **Carcinogenicity**: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible, or confirmed human carcinogen by IARC, ACGIH, NTP, or OSHA
- **Reproductive Toxicity**: No data available
- **Teratogenicity**: No data available
- **Specific Target Organ Toxicity: Single Exposure (Globally Harmonized System)**: No data available
- **Specific Target Organ Toxicity: Repeated Exposure (Globally Harmonized System)**: No data available
- **Aspiration Hazard**: No data available
- **Potential Health Effects**: See Section 2, Hazard(s) Identification
- **Synergistic Effects**: No data available
- **Signs and Symptoms of Exposure**: Gastrointestinal effects- vomiting, diarrhea, and abdominal pain.
  
  To the best of our knowledge, the chemical, physical, and toxicological properties of this substance have not been thoroughly investigated

12. ECOLOGICAL INFORMATION
- **Toxicity**: No data available
- **Persistence and Degradability**: No data available
- **Bioaccumulative Potential**: No data available
- **Mobility in Soil**: No data available
- **PBT and vPvB Assessment**: No data available
- **Treat as if harmful if released into environment**
13. DISPOSAL CONSIDERATIONS

Product
Dispose of product through a licensed disposal company

Contaminated Packaging
Dispose of as unused product

14. TRANSPORTATION INFORMATION

DOT (US)
Not Dangerous Goods

IMDG
Not Dangerous Goods

IATA
Not Dangerous Goods

15. REGULATORY INFORMATION

OSHA Hazards
Harmful by ingestion

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right to Know Components
No components are subject to the Massachusetts Right to Know Act

Pennsylvania Right to Know Components
Polymyxin B, sulfate (salt)
CAS-No. [1405-20-5]
Revision Date: Not available

New Jersey Right to Know Components
Polymyxin B, sulfate (salt)
CAS-No. [1405-20-5]
Revision Date: Not available

California Prop. 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm

Canada Information
No data available

EU Information
SDS in accordance with REACH 1907/2006
ECHA Pre-Registered Substance
EC Number [215-774-7]
CAS-No. [1405-20-5]
Name: Polymyxin B, sulfate (salt)
Envisaged Registration Deadline: 30/11/2010
See GHS Information under Section 2, Hazard Identification

16. OTHER INFORMATION

Date of last revision: 2016-03-10

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state
of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. TOKU-E Company shall not be held liable for any damage resulting from handling or from contact with the above product. Please see reverse side of invoice or packing slip for additional terms and conditions of sale.