1. IDENTIFICATION
   - Product Identifier: Cefpirome sulfate
   - Product Number: C014
   - Distributor Name: TOKU-E Company
   - Distributor Address: 715 W Orchard Dr, Suite 3, Bellingham, WA 98225
   - Phone Number: (360) 734-1789
   - Emergency Phone Number (International): +1 (352) 323-3500
   - Emergency Phone Number (US only): 1 (800) 535-5053
   - Safety Data Sheet Issued by: TOKU-E USA
   - CAS-No.: [98753-19-6]
   - EC/REACH Number: Not available
   - Recommended Use: Fourth-generation cephalosporin antibiotic
   - Restrictions on Use: Not for human or animal use

2. HAZARD(S) IDENTIFICATION
   - GHS Classification:
     - Respiratory sensitizer (Category 1)
     - Skin sensitizer (Category 1)
     - Reproductive toxicity (Category 2)
   - GHS Label Elements, Including Precautionary statements
   - Signal Word: Danger
   - Hazard Statements:
     - H317: May cause an allergic skin reaction
     - H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
     - H361: Suspected of damaging the unborn child
   - Precautionary Statements:
     - P201: Obtain special instructions before use
     - P202: Do not handle until all safety precautions have been read and understood
     - P261: Avoid breathing dust/ fumes/ gas/ mist/ vapors/ spray
     - P272: Contaminated work clothing should not be allowed out of the workplace
     - P280: Wear protective gloves/ eye protection/ face protection
     - P281: Use personal protective equipment as
In case of inadequate ventilation, wear respiratory protection.

P285: In case of inadequate ventilation, wear respiratory protection

P302 + P352: IF ON SKIN: Wash with plenty of soap and water

P304+P341: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

P308+P313: IF exposed or concerned: Get medical advice/attention.

P321: Specific treatment (see supplemental first aid instructions)

P333 + P313: If skin irritation or rash occurs: Get medical advice/attention

P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

P362: Take off contaminated clothing and wash before reuse

P405: Store Locked up

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

Hazards not otherwise classified (HNOC) by GHS

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms

HR 810 sulfate;
5H-1-Pyrindinium,1-((7-(((2-amino-4-thiazolyl)(methoxyimino)acetyl)amino)-2-carboxy-8-oxo-5-thia-1-azabicyclo(4.2.0)oct-2-en-3-yl)methyl)-6,7-dihydro-, (6R-(6-alpha,7-beta(Z)))-, sulfate (1:1)

Formula
C_{22}H_{22}N_{6}O_{5}S_{2}H_{2}SO_{4}

Molecular Weight
612.66 g/mol

CAS-No.
[98753-19-6]

EC No.
Not available

Index-No.
Not available

Hazardous components
Cefpirome sulfate

Acute toxicity, Oral (Category 5)
Reproductive toxicity (Category 2, Suspected)

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
In Case of Skin Contact: Wash thoroughly with plenty of soap and water. Consult a physician.

In Case of Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If Swallowed: Never give anything by mouth to an unconscious person. Consult a doctor. Rinse mouth with water.

Most important symptoms and effects, both acute and delayed: Please see Section 2 and/or Section 11.

Indication of any immediate medical attention and special treatment needed: No data available.

5. FIRE-FIGHTING MEASURES

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.


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: -20°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
Handle with gloves. Wear protective clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place. 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 or almost-white crystalline powder</td>
</tr>
<tr>
<td>pH (2% in water)</td>
<td>1.3-2.5</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>198-202°C</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No data available</td>
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<tr>
<td>Ignition Temperature</td>
<td>No data available</td>
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<tr>
<td>Autoignition Temperature</td>
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</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Freely soluble</td>
</tr>
<tr>
<td>Solubility in Other Solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition Coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Optical Rotation</td>
<td>No data available</td>
</tr>
<tr>
<td>Absorbance (290nm, 5% in H₂O)</td>
<td>No data available</td>
</tr>
<tr>
<td>Water content (Karl Fisher)</td>
<td>≤4.0%</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
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<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability</td>
<td>Stable under recommended storage conditions</td>
</tr>
<tr>
<td>Possibility of Hazardous Reactions</td>
<td>No data available</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>No data available</td>
</tr>
<tr>
<td>Materials to Avoid</td>
<td>Strong oxidizing agents</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Carbon, Nitrogen, and Sulfur oxides formed under fire conditions</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION
**Oral LD$_{50}$**

Rat:  >8,000 mg/kg  
Remarks, Behavioral: Altered sleep time (including change in righting reflex). Convulsions or effect on seizure threshold  
Remarks, Lungs, Thorax, or Respiration: Respiratory depression  
Mouse: 16,200 mg/kg  

**Inhalation LC$_{50}$**

No data available  

**Dermal LD$_{50}$**

No data available  

**Intraperitoneal TD$_{LO}$**

Rat: 36,000 mg/kg/90D-I  
Remarks, Kidney, Ureter, Bladder: Changes in bladder weight  
Remarks, Blood: Changes in serum composition (e.g. TP, bilirubin, cholesterol). Changes in erythrocyte (RBC) count  
Monkey: 45,000 mg/kg/90D-I  
Remarks, Kidney, Ureter, Bladder: Other changes in urine composition  
Remarks, Blood: Changes in serum composition (e.g. TP, bilirubin, cholesterol)  
Remarks, Nutritional and Gross Metabolic: Weight loss or decreased weight gain  
Monkey: 75,200 mg/kg/26W-I  
Remarks, Kidney, Ureter, Bladder: Other changes in urine composition. Changes in bladder weight  
Remarks, Blood: Changes in erythrocyte (RBC) count  

**Intraperitoneal LD$_{50}$**

Rat: 5,800 mg/kg  
Mouse: 3,850 mg/kg  

**Intravenous LD$_{50}$**

Rat: 1,900 mg/kg  
Mouse: 2,400 mg/kg  

**Subcutaneous LD$_{50}$**

Rat: >10,000 mg/kg  
Remarks, Behavioral: Altered sleep time (including change in righting reflex). Convulsions or effect on seizure threshold  
Remarks, Lungs, Thorax or Respiration: Respiratory depression  

**Skin Corrosion/Irritation**

No data available  

**Serious Eye Damage/ Eye Irritation**

No data available  

**Respiratory or Skin Sensitization**

β-lactams are a broad class of antibiotics and include penicillins and cephalosporins. Some individuals experience adverse immunological responses or allergic reactions to β-lactam antibiotics. Because of the similarity in structure between penicillins and cephalosporins, those who are allergic to one class of agents may manifest cross-allergenicity when exposed to a member of another class.
TOKU-E Company assumes this chemical has the potential to induce an allergic reaction in some individuals. To the best of our knowledge, the correlation between this specific material and respiratory or skin sensitization has not been thoroughly investigated.

Germ Cell Mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA

Reproductive Toxicity

Intraperitoneal TDLO Female Rat, 7-17 days after conception: 8,800 mg/kg
Remarks, Effects on Embryo or Fetus: Extra-embryonic structures (e.g. placenta, umbilical cord). Fetotoxicity (except death, e.g. stunted fetus). Physical effects on newborn
Intravenous TDLO Female Rat, 7-17 days after conception: 8,800 mg/kg
Remarks, Maternal Effects: Other effects
Remarks, Effects on Embryo or Fetus: Fetotoxicity (except death, e.g. stunted fetus)

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

Signs and Symptoms of Exposure
No data available

Synergistic Effects
No data available

Additional Information
RTECS: UW8970000

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
Harmful to aquatic life. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

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

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
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 311/312

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

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

New Jersey Right to Know Components
No components are subject to the New Jersey Right to Know Act

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

EU Information
SDS in accordance with REACH 1907/2006

A registration number is not available for this substance or its uses are exempted from registration, the annual tonnage does not require a registration, or the registration is envisaged for a later registration deadline.

See GHS Information under Section 2, Hazard Identification

16. OTHER INFORMATION

Date of last revision: 2016-02-19

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.