SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product Identifier : Sulbenicillin Sodium
Product Number : S041
CAS Number : [28002-18-8]

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified Uses : For research use only - restricted to professional users.
Uses Advised Against : Not for human or animal use

1.3 Details of the supplier of the safety data sheet
Company : TOKU-E Company
715 W Orchard Dr. Suite 3
Bellingham, WA 98225
Phone Number : (360) 734-1789
E-mail Address : info@toku-e.com
Safety Data Sheet Issued by : TOKU-E Company (USA)

1.4 Emergency telephone number
Emergency Phone Number (Internat.) : +1 (352) 353-3500 (INFOTRAC, 24-Hour Number)
Emergency Phone Number (US Only) : 1 (800) 535-5053 (INFOTRAC, 24-Hour Number)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS classification in accordance with 29 CFR 1910 (OSHA HCS)
Not classified as a hazardous substance or mixture.

2.2 GHS label elements, including precautionary statements
Not classified as a hazardous substance or mixture.

2.3 Hazards otherwise not classified (HNOC) or not covered by GHS
None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonym(s) : Sulbenicillin disodium; α-Sulfobenzylpenicillin disodium; Sulfocillin; Kedacillin; Lilacillin
Formula : C_{16}H_{16}N_{2}O_{7}S_{2}•Na_{2}
Molecular weight : 458.42 g/mol

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulbenicillin Sodium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS Number [28002-18-8]</td>
<td></td>
<td>≤ 100%</td>
</tr>
<tr>
<td>EC Number [248-769-3]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: FIRST-AID MEASURES

4.1 Description of first-aid measures

General information
Consult a doctor/physician if exposed - additional medical care may be required. Show this safety data sheet to the medical provider.

If inhaled
If inhaled, move to fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash skin thoroughly with soap and water. Remove any contaminated clothing. Consult a physician.

In case of eye contact
Flush eye with water. After initial flush, remove any contact lenses and continue flushing for at least 15 minutes.

If swallowed
Rinse mouth with water. Immediately call a doctor, physician, or poison control center. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media
No data available

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products
Carbon and nitrogen oxides, sulfur oxides, sodium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus if necessary.

5.4 Further information
No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Consult the safety measures listed in Section 7 and 8. Use personal protective equipment. Avoid breathing dust, vapors, mist or gas. Avoid direct contact with spilled substances. Ensure adequate ventilation. Avoid dust formation.
For personal protection see Section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
Refer to section 8 for exposure control and personal protection. Refer to section 13 for disposal information.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautionary statements see section 2.2

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Protect from humidity. Recommended storage temperature: ≤ 30 °C

Incompatibilities:
Strong oxidizing agents

7.3 Specific end use(s)
Refer to section 1.2

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters:
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls:
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling this product. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

Personal Protective Equipment (PPE):
Respiratory protection
Wear respiratory protection. Use type N95 (US) or type P1 (EN 143) dust masks as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Skin 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. Wash and dry hands.

Eye/Face protection
Wear eye protection. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Body protection
Wear protective clothing. The type of protective equipment must be selected according to the concentration of the dangerous substance at the specific work place.

Environmental exposure controls
Do not let product enter drains. Discharge into the environment must be avoided.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- Appearance: White to off-white powder
- Odor: No data available
- Odor Threshold: No data available
- pH: No data available
- Melting Point/Freezing Point: No data available
- Initial Boiling Point and Range: No data available
- Flash Point: No data available
- Evaporation rate: No data available
- Flammability (solid, gas): No data available
- Upper/Lower Flammability or Explosive Limits: No data available
- Vapour Pressure: No data available
- Vapour Density: No data available
- Relative Density: No data available
- Solubility(ies): Soluble in water and DMSO. Insoluble in ethanol.
- Partition Coefficient: n-octanol/water: No data available
- Auto-Ignition Temperature: No data available
- Decomposition Temperature: No data available
- Viscosity: No data available
- Explosive Properties: No data available
- Oxidising Properties: No data available

9.2 Other safety information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

No data available

See Section 5 for hazardous combustion products.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

- Acute Toxicity
  - Oral LD$_{50}$: Rat: > 15 g/kg, Mouse: > 15 g/kg
  - Subcutaneous LD$_{50}$: Rat: 11 g/kg, Mouse: 11.5 g/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
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by the International Agency for Research on Cancer Monograph.
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 the National Toxicology Program.
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 the Occupational Health and Safety Association.

Reproductive Toxicity
Rat: Intramuscular TDLo 182 g/kg
Male, 91 days pre-mating
Toxic Effects: Paternal Effects - Prostate, seminal vesicle, Cowper's gland, accessory gland

Specific Target Organ Toxicity: Single Exposure
No data available

Specific Target Organ Toxicity: Repeated Exposure
No data available

Aspiration Hazard
No data available

Additional Information
RTECS # XH9890000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

ß-lactams are a broad class of antibiotics and include penicillins, cephalosporins, carbapenems and monobactams. Some individuals experience adverse immunological responses or allergic reactions to ß-lactams. Because of the structural similarity between these antibiotics, 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.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available
12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects
No data available

In the absence of complete ecological information, treat product as environmentally hazardous.
Use proper storage, handling, and disposal to prevent unintentional release into the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Offer surplus and non-recyclable products to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Avoid disposal of material in drains or sewers.

Contaminated Packaging
Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 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
No chemicals in this material are subject to the reporting requirements of 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
No components are subject to the Massachusetts Right to Know Act.

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

New Jersey Right to Know
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.
Further information
Revision Date: 2019-03-14

The above information is based upon the present state of our knowledge and is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information is believed to be correct but does not purport to be all inclusive. It does not represent any guarantees of the properties of the product. TOKU-E Company shall not be held liable for damage or injury resulting from contact, handling, or storage of the above product.