1. IDENTIFICATION

Product Identifier: Blasticidin S hydrochloride
Product Number: B001
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) 353-3500
Emergency Phone Number (US Only): 1 (800) 535-5053
Safety Data Sheet Issued by: TOKU-E USA
CAS-Number: [3513-03-9]
EC/REACH Number: [609-067-6]

Recommended Use: Blasticidin S HCl is frequently used as a selection agent after transfection of eukaryotic cells.
Restrictions of Use: Not for human or animal use

2. HAZARD(S) IDENTIFICATION

GHS Classification:
- Acute Toxicity (Oral, Category 1)
- Acute Toxicity (Dermal, Inhalation, Category 4)

GHS Label Elements, Including:

Hazard Statements:
H300  Fatal if swallowed
H312+H332  Harmful in contact with skin or if inhaled

Precautionary Statements:
P261  Avoid breathing dust/fumes/gas/mist/vapors/spray.
P264  Wash hands/skin thoroughly after handling.
P270  Do not eat, drink, or smoke when using this product.
P271  Use only outdoors or in a well-ventilated area.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310  IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352  IF ON SKIN: Wash with plenty of water/soap
P304+P340  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312  Call a POISON CENTER/doctor if you feel unwell.
P321  Specific treatment, see applicable response statements on this label
P330  Rinse mouth
P363  Wash contaminated clothing before reuse.
P405  Store locked up.
P501  Dispose of contents/container in accordance with governmental regulation
3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonym(s) Blasticidin S hydrochloride, Blasticidin S HCl
Formula C_{17}H_{26}N_{8}O_{5} \cdot HCl
Molecular Weight 458.90
CAS-Number [3513-03-9]
EC/REACH Number [609-067-6]
Hazardous Components Blasticidin S HCl
Acute Toxicity (Oral, Category 1)
Acute Toxicity (Dermal, Inhalation, Category 4)

4. FIRST-AID MEASURES

General Advice 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 and immediately call local emergency telephone number.

In Case of Skin Contact Wash skin thoroughly with soap and water.

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.

Specific Treatment Please see Section 2 precautionary statements and/or Section 11.

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 and nitrogen oxides, carbon monoxide, hydrogen peroxide

6. ACCIDENTAL RELEASE MEASURES

General Evacuate personnel to a safe location. Use appropriate personal protective equipment while in contact with product. Avoid dust formation. Ensure adequate ventilation.

Personal Precautions Prevent contamination of skin, eyes and clothing with appropriate protective equipment (Section 8). Wear respiratory protection.

Environmental Precautions Recover waste, if possible, and place in suitable closed container for licensed disposal. Prevent
spillage - do not let product enter drains.

7. **HANDLING AND STORAGE**
   
   **Precautions for Safe Handling**
   Wear appropriate protective clothing/gear to prevent contact with skin and eyes. Provide exhaust ventilation or respiratory protection in areas where dust is formed.
   
   **Precautions for Safe Storage**
   Store in a tightly closed container. Protect from humidity.
   
   **Incompatibilities**
   No Data Available

8. **EXPOSURE CONTROLS/ PERSONAL PROTECTION**
   
   Contains no substance/substances with occupational exposure limit values
   
<table>
<thead>
<tr>
<th>Safety Standard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA Permissible Exposure Limits</td>
<td>No Data Available</td>
</tr>
<tr>
<td>NIOSH Recommended Exposure Limits</td>
<td>No Data Available</td>
</tr>
<tr>
<td>ACGIH Threshold Limit Values</td>
<td>No Data Available</td>
</tr>
</tbody>
</table>
   
   **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 workplace. When deemed needed according to the concentration and amount of this product, use a complete body suit

9. **PHYSICAL/CHEMICAL PROPERTIES**
   
   **Appearance**
   White or off white powder
   
   **Lower Flammability/Explosion Limit**
   No Data Available
   
   **Upper Flammability/Explosion Limit**
   No Data Available
Odor No Data Available
Vapor Pressure No Data Available
Odor Threshold No Data Available
Vapor Density No Data Available
pH No Data Available
Relative Density No Data Available
Melting Point/Freezing Point 218.0 - 225.0°C
Water Solubility Clear or colorless or slight yellow in solution
Solubility in Other Solvents No Data Available
Boiling Point and Range No Data Available
Flash Point No Data Available
Evaporation rate No Data Available
Flammability (solid, gas) No Data Available
Partition Coefficient: n-octanol/water No Data Available
Ignition Temperature No Data Available
Auto-Ignition Temperature No Data Available
Decomposition Temperature No Data Available
Viscosity No Data Available
Density No Data Available
Optical Rotation No Data Available
Absorbance (290nm, 5% in H₂O) No Data Available
Water Content (Loss on Drying) No Data Available

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 Formed under fire conditions: carbon and nitrogen oxides, carbon monoxide, hydrogen peroxide

11. TOXICOLOGICAL INFORMATION
Oral LD₅₀ Rat - 16 mg/kg
Inhalation LC₅₀ No Data Available
Dermal LD₅₀ No Data Available
Intraperitoneal LD₅₀ No Data Available
Intravenous LD₅₀ No Data Available
Subcutaneous LD₅₀ No Data Available
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 This substance has not been identified as a potential carcinogen within the National Toxicology Program Report on Carcinogens or within the International Agency for Research on Cancer Monograph.
Reproductive Toxicity No Data Available
Specific Target Organ Toxicity: Single No Data Available
Exposure (Globally Harmonized System)
Specific Target Organ Toxicity: Repeated No Data Available
Exposure (Globally Harmonized System)
Aspiration Hazard No Data Available
Potential Heath Effects See Section 2, Hazard(s) Identification
Signs and Symptoms of Exposure To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated
Synergistic Effects No Data Available
Additional Information No Data Available

12. ECOLOGICAL INFORMATION
Toxicity No Data Available
Persistence and Degradability No Data Available
Bio accumulative Potential No Data Available
Mobility in Soil No Data Available
PBT and vPvB Assessment 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.

13. DISPOSAL CONCENTRATIONS
Product Dispose of product through a licensed disposal company.
Contaminated Packaging Dispose of as unused product.

14. TRANSPORTATION INFORMATION
DOT (US) UN Number: 2811 Class 6.1, Packing group II
Proper shipping name: Toxic solids, organic, n.o.s. (Blasticidin S HCl)
Marine pollutant: No
Poison inhalation hazard: No

IMDG UN Number: 2811 Class 6.1, Packing group II
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Blasticidin S HCl)
EMS-no. F-A, S-A
Marine pollutant: No

IATA UN Number: 2811 Class 6.1, Packing group II
Proper shipping name: Toxic solid, organic, n.o.s. (Blasticidin S HCl)

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.
<table>
<thead>
<tr>
<th>SARA 311/312 Hazards</th>
<th>No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 311/312</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts Right to Know</td>
<td>No components are subject to the Massachusetts Right to Know Act</td>
</tr>
<tr>
<td>Pennsylvania Right to Know</td>
<td>No components are subject to the Pennsylvania Right to Know Act</td>
</tr>
<tr>
<td>New Jersey Right to Know</td>
<td>No components are subject to the New Jersey Right to Know Act</td>
</tr>
<tr>
<td>California Prop. 65 Components</td>
<td>This product does not contain any chemicals known to the State of California to cause birth defects, cancer, or any other reproductive harm</td>
</tr>
</tbody>
</table>
| EU Information | SDS in accordance with REACH 1907/2006  
EC/REACH Number [609-067-6]  
CAS-Number [3513-03-9]  
Name: Blasticidin S hydrochloride  
Envisaged Registration Deadline: 31/05/2018  
See GHS Information under Section 2, Hazard Identification |

16. OTHER INFORMATION  
Revision Date: 2016-05-20

This safety data sheet represents TOKU-E Company’s current understanding of the hazards associated with this product. The stated hazard information is based on existing experimental data and is not guaranteed to be all-inclusive. TOKU-E Company strives to maintain current and comprehensive safety information but recognizes that this safety data sheet may require revision as new information becomes available. TOKU-E Company shall not be held liable for damage or injury resulting from contact, handling, or storage of this product.