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

1.1 Product identifier
Product Identifier D-Cycloserine
Product Number C041
CAS Number [68-41-7]
EC Number [200-688-4]

1.2 Relevant identified uses of the substance or mixture and uses advised against
Recommended Use Research antimicrobial use
Restrictions of Use Not for human or animal use

1.3 Details of the supplier of the safety data sheet
Distributor Name TOKU-E Company
Distributor Address 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 (International) +1 (352) 353-3500
Emergency Phone Number (US Only) 1 (800) 535-5053

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification Not a GHS hazardous substance or mixture.
(Please refer to Section 16 for regulatory information)

2.2 Label elements, including precautionary statements
GHS Label Elements: None
Signal Word: None
Hazard Statements None
Precautionary Statements

2.3 Other hazards which do not result in classification
Hazards not otherwise classified (HNOC) by GHS No Data Available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances
Synonym(s) D-4-Amino-3-isoxazolidone, Tisomycin, Seromycin
Formula C₃H₆N₂O₂
Molecular Weight 102.09
CAS Number [68-41-7]
EC Number [200-688-4]
Hazardous Ingredients No Data Available

SECTION 4: FIRST-AID MEASURES

4.1 Description of 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.

4.2 Most important symptoms/effects, acute and delayed
Specific Treatment Please see Section 2 and Section 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No Data Available

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Suitable Extinguishing Media Water spray, alcohol-resistant foam, dry chemical, carbon dioxide

5.2 Special hazards arising from the substance or mixture
Hazardous Combustion Products Formed under fire conditions: carbon and nitrogen oxides, carbon monoxide, hydrogen peroxide

5.3 Advice for firefighters
Special Protective Equipment for Firefighters Wear self-contained breathing apparatus

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures

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.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

The recommended course of action is to treat any incident that involves the spill/release of a chemical substance as if it were hazardous in nature until the appropriate personnel have been consulted. Wear personal protective equipment as necessary. If accessible, use a spill kit. For powder spills, avoid generating dust during cleanup.

6.4 Reference to other sections
Refer to section 8 for exposure control.
Refer to section 13 for disposal information.

SECTION 7: HANDLING AND STORAGE

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities
Store in a tightly closed container. Protect from humidity.

Incompatibilities
No Data Available

7.3 Specific end use(s)
Refer to section 1.2

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters
Contains no substance/substances with occupational exposure limit values

OSHA Permissible Exposure Limits
No Data Available
NIOSH Recommended Exposure Limits
No Data Available
ACGIH Threshold Limit Values
No Data Available
8.2 Exposure controls

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.

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White to yellow crystalline powder</td>
</tr>
<tr>
<td>Odor</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No Data Available</td>
</tr>
<tr>
<td>pH</td>
<td>5.5 – 6.5</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
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</tr>
<tr>
<td>Initial Boiling Point and Range</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Upper Flammability/Explosion Limit</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Lower Flammability/Explosion Limit</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Water Solubility</td>
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</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>Auto-Ignition Temperature</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No Data Available</td>
</tr>
</tbody>
</table>
Viscosity: No Data Available
Explosive Properties: No Data Available
Oxidizing Properties: No Data Available
Specific Rotation: +108° - +114°
Absorbance (290nm, 5% in H₂O): No Data Available
Water Content (Loss on Drying): Not more than 1.0%

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

**SECTION 11. TOXICOLOGICAL INFORMATION**

11.1 Information on toxicological effects
- Oral LD₅₀: Rat: >5 gm/kg
- Inhalation LC₅₀: No Data Available
- Dermal LD₅₀: No Data Available
- Intraperitoneal LD₅₀: Mouse: 180 mg/kg
- Intravenous LD₅₀: Mouse: 560 mg/kg
- Subcutaneous LD₅₀: Rat: >3 gm/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: 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 Exposure (GHS): No Data Available
Specific Target Organ Toxicity: Repeated Exposure (GHS): No Data Available
Aspiration Hazard: No Data Available
Potential Health 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

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 PBT and vPvB assessment: No Data Available
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
Dispose unused/spoiled product in accordance with local and federal regulations. Sewering is not an acceptable form of waste disposal.

Product: Dispose of product through a licensed disposal company.
Contaminated Packaging: Dispose of as unused product.

SECTION 14: TRANSPORTATION INFORMATION

DOT (US): Not a Dangerous Good
IMDG: Not a Dangerous Good
IATA: Not a Dangerous Good

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Section 2/3: Hazards identification/labelling in accordance with OSHA 29 CFR 1910.1200
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

EU Information
SDS in accordance with Regulation (EC) 1907/2006
EC Number [200-688-4]
CAS Number [68-41-7]
Name: D-Cycloserine
Envisaged Registration Deadline: 30/11/2010
Information under Section 2, Hazard Identification, classification and labelling in accordance with Regulation (EC) 1272/2008
Information under Section 3, Hazardous components according to Regulation (EC) No 1272/2008

15.2 Chemical safety assessment

EU Information
For this product a chemical safety assessment was not carried out

16. OTHER INFORMATION
Revision Date: 2017-08-29

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.