1. PRODUCT AND COMPANY IDENTIFICATION

Product name
Tunicamycin

UN/ID No
3462

Recommended use
For research use only. Not for use in diagnostic procedures

Supplier Address
Abcam Inc
1 Kendall Square, Ste 341
Cambridge, MA 02139-1517
USA
Tel: (617)225-2272 or 888-77-ABCAM (22226) (US toll free)
Fax: (866) 739-9884 or (866) 457-9616 (both US toll free)

E-mail address
technical@abcam.com

Emergency telephone
+1 866 928 0789 (Toll free) /+1 202 464 2554

2. HAZARDS IDENTIFICATION

GHS - Classification

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>Category 2</th>
</tr>
</thead>
</table>

GHS Label elements, including precautionary statements

Signal Word
Danger

Hazard statements
H300 - Fatal if swallowed
Precautionary Statements - EU (§28, 1272/2008)
P280 - Wear protective gloves/ eye protection/ face protection
P270 - Do not eat, drink or smoke when using this product
P264 - Wash face, hands and any exposed skin thoroughly after handling
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
P330 - Rinse mouth
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

Other information
Caution - substance not yet tested completely

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Classification (Reg. 1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunicamycin</td>
<td>11089-65-9</td>
<td>100</td>
<td>Acute Tox. 2 (H300)</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Immediate medical attention is required.

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation
Move to fresh air.

Ingestion
Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Notes to physician
Treat symptomatically.

Protection of first-aiders
Use personal protective equipment. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Flammable properties
Not flammable.

Flash point
not determined

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data
Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Keep people away from and upwind of spill/leak.

Environmental precautions
Try to prevent the material from entering drains or water courses.

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Use personal protective equipment. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically and collect in suitable container for disposal. Avoid dust formation. Clean contaminated surface thoroughly.

Other information
Refer to protective measures listed in sections 7 and 8.

7. HANDLING AND STORAGE

Advice on safe handling
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Do not breathe vapors or spray mist.

Technical measures/Storage conditions
Keep out of the reach of children. Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSOANAL PROTECTION

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering measures
Showers
Eyewash stations
Ventilation systems

Personal protective equipment
Eye/face protection
Tightly fitting safety goggles.

Skin and body protection
Long sleeved clothing. Protective gloves.

Respiratory protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures
When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin, eyes and clothing.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-white.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No information available.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>solubility</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor Pressure @20°C (kPa)</td>
<td>No information available.</td>
</tr>
<tr>
<td>VOC Content(%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odor</td>
<td>Physical State @20°C Solid</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability Limits in Air</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under recommended storage conditions.</td>
</tr>
<tr>
<td>Incompatible products</td>
<td>None known based on information supplied.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>None known based on information supplied.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Very toxic if swallowed. Product is toxic by ingestion</td>
</tr>
<tr>
<td>Product Information</td>
<td>Very toxic if swallowed. Product is toxic by ingestion</td>
</tr>
<tr>
<td>Inhalation</td>
<td>There is no data available for this product</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Very toxic if swallowed</td>
</tr>
<tr>
<td>Chronic toxicity</td>
<td>Prolonged or repeated exposure increases the risk Possible risks of irreversible effects</td>
</tr>
<tr>
<td>Chronic toxicity</td>
<td>Prolonged or repeated exposure increases the risk Possible risks of irreversible effects</td>
</tr>
<tr>
<td>Mutagenic effects</td>
<td>No information available.</td>
</tr>
<tr>
<td>Target Organ Effects</td>
<td>None known.</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotoxicity</td>
<td>The environmental impact of this product has not been fully investigated.</td>
</tr>
</tbody>
</table>
13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local laws. The use of licensed waste hauler and disposal contractors is advised.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Tunicamycin)
Hazard class: 6.1
UN/ID No: 3462
Packing group: II

IATA
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Tunicamycin)
UN/ID No: 3462
Packing group: II

ADR
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Tunicamycin)
UN/ID No: 3462
Packing group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 3T3 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>yes</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>no</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>no</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>no</td>
</tr>
</tbody>
</table>

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations
California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

International Regulations

WHMIS Note: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H300 - Fatal if swallowed

Hazard statements
H300 - Fatal if swallowed
Revision Date 27-Aug-2019
Revision Note No information available.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of MSDS