Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Tetrodotoxin
UN/ID No: 3462
Recommended use: For research use only

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: Tel: (617)225-2272 or 888-77-ABCAM (22226) (US toll free) - Monday-Friday 8am-9pm EST

2. HAZARDS IDENTIFICATION

GHS - Classification

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute inhalation toxicity - dust/mist</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

Signal Word: Danger

Hazard statements:
H300 - Fatal if swallowed
H310 - Fatal in contact with skin
H330 - Fatal if inhaled
Precautionary Statements - EU (§28, 1272/2008)
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P262 - Do not get in eyes, on skin, or on clothing
P280 - Wear protective gloves/ eye protection/ face protection
P284 - Wear respiratory protection
P361 - Remove/Take off immediately all contaminated clothing
P264 - Wash face, hands and any exposed 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
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P330 - Rinse mouth
P501 - Dispose of contents/ container to an approved waste disposal plant
P405 - Store locked up
P363 - Wash contaminated clothing before reuse

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>Tetrodotoxin</td>
<td>4368-28-9</td>
<td>60-100</td>
<td>Acute Tox. 1 (H300)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 1 (H310)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 2 (H330)</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. Call a physician immediately.

Inhalation

Move to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Call a physician or poison control center immediately.

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 Static Discharge: none.

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with the skin and the eyes. Avoid dust formation. Ensure adequate ventilation. Evacuate personnel to safe areas. 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. Avoid dust formation. Use only in area provided with appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use.

Technical measures/Storage conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep in properly labeled containers.
8. EXPOSURE CONTROLS/PERSONAL 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
No special protective equipment required.

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. Remove and wash contaminated clothing before re-use. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>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>
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</tr>
<tr>
<td>Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC Content(%)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Physical State @20°C</td>
<td>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>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
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</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under recommended storage conditions.

Incompatible products
None known based on information supplied.

Conditions to avoid
None known based on information supplied.

Hazardous decomposition products
Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NOx).

Hazardous polymerization
Hazardous polymerization does not occur.
### 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Product Information**
This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound are not well defined. Very toxic in contact with skin and if swallowed.

**Inhalation**
Very toxic by inhalation

**Skin contact**
May be fatal if absorbed through skin

**Ingestion**
May be fatal if swallowed

**Chronic toxicity**

**Chronic toxicity**
Prolonged or repeated exposure increases the risk Possible risks of irreversible effects

**Carcinogenicity**
Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Target Organ Effects**
None known.

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**
The environmental impact of this product has not been fully investigated.

### 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**

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>Excepted Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxins, extracted from living sources, solid, n.o.s. (Tetrodotoxin)</td>
<td></td>
</tr>
<tr>
<td>Hazard class</td>
<td>6.1</td>
</tr>
<tr>
<td>UN/ID No</td>
<td>3462</td>
</tr>
<tr>
<td>Packing group</td>
<td>I</td>
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</table>

**IATA**

<table>
<thead>
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</table>
15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 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>
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</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

Mexico - Grade
Severe risk, Grade 4

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.
Full text of H-Statements referred to under sections 2 and 3
H300 - Fatal if swallowed H310 - Fatal in contact with skin H330 - Fatal if inhaled

Hazard statements
H300 - Fatal if swallowed
H310 - Fatal in contact with skin
H330 - Fatal if inhaled

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