

SAFETY DATA SHEET

Date Revised: December 17, 2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Tetrodotoxin, citrate-free
Catalog Number: 00060
Unit Size: 1mg
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: <http://www.biotium.com>

2. HAZARDS IDENTIFICATION

Classification according to Regulation (EC) No 1272/2008[CLP]

Acute Tox. 1 (H300), Acute Tox. 1 (H310), Acute Tox. 2 (H330)

Classification according to Directive 1999/45/EC

None

Labeling according to Regulation (EC) No 1272/2008[CLP]**Hazard pictogram****Signal word** Danger**Hazard statements**

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray
P262 Do not get in eyes, on skin, or on clothing
P264 Wash hands thoroughly after handling

HMIS Classification

Health hazard: 0

Flammability: 0

Physical hazards: 0

NFPA Rating

Health hazard: 0

Fire: 0

Reactivity Hazard: 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Name | CAS No. | EC No. | Index No. | Weight % | Classification according to 67/548/EEC | Classification according to regulation (EC)No1278/2008 |
|----------------------------|-----------|-----------|-----------|----------|--|--|
| Tetrodotoxin, citrate-free | 4368-28-9 | 224-458-8 | - | ≥ 95% | T+; R26/27/28 | - |

4. FIRST-AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

Special protective equipment for firefighters

Wear suitable protective clothing to prevent contact with skin and eyes and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Do not take action without suitable protective clothing. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapors, mist, dust or gas

Environmental precautions

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

Methods and materials for containment and cleaning up

Cover spillage with suitable absorbent material. Using non-spark tools, sweep up material and place in an appropriate container. Decontaminate spill site with 10% caustic solution and ventilate area until after disposal is complete.

7. HANDLING AND STORAGE

Precautions for safe handling

Use in a chemical fume hood, with air supplied by an independent system. Avoid inhalation, contact with eyes, skin and clothing. Avoid the formation of dust and aerosols. Use in a well-ventilated area. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

Conditions for safe storage

Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use. Recommended storage temperature: Desiccate at -20°C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| | |
|-------------------|----------------------------|
| Substance | Tetrodotoxin, citrate-free |
| CAS no. | 4368-28-9 |
| Control parameter | No information available |

Personal protective equipment

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) 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.

Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------------------------------|----------------------------|
| Chemical Name | Tetrodotoxin, citrate-free |
| Appearance | White Solid |
| Odor | No information available |
| Odor threshold | No information available |
| pH | No information available |
| Melting point/freezing point | No information available |
| Boiling point | No information available |
| Flash point | No information available |
| Evaporate rate | No information available |
| Flammability | No information available |
| Explosive limits | No information available |
| Vapor pressure | No information available |
| Vapor density | No information available |
| Relative density | No information available |
| Solubility | Soluble in Water |
| Partition coefficient:n-octanol/water | No information available |
| Auto-ignition temperature | No information available |
| Decomposition temperature | 220 °C |
| Viscosity | No information available |
| Explosive properties | No information available |
| Oxidising properties | No information available |

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

Heat, flames, moisture, and sparks.

Materials to avoid

No data available

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 None

Inhalation LC50 None

Dermal LD50 None

Other information on acute toxicity UNR-RAT LD50: 15µg/kg; ORL-MUS LD50: 334µg/kg; IPR-MUS LD50: 8µg/kg; SCU-MUS LD50: 8µg/kg; IVN-MUS LD50: 7300ng/kg; ICE-MUS LD50: 600ng/kg; ORL-RBT LDLo: 7500µg/kg; ICE-RBT LDLo: 25µg/kg; PAR-RBT LDLo: 4µg/kg; IPRFRG

LD50: 14µg/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 IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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 NTP.

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 OSHA.

Reproductive toxicity no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

| | |
|-----------------------------|--|
| Inhalation | There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Absorption through the lungs can occur causing symptoms similar to those of ingestion. Severe poisoning causes severe shortness of breath and shock, with blueness of the lips, tongue, ears, face, hands and feet. |
| Ingestion | There may be soreness and redness of the mouth and throat. Nausea and stomach pain may occur. Blood may be vomited. There may be vomiting and diarrhea. There may be loss of consciousness. Severe poisoning can cause unconsciousness and severe and persistent nausea and vomiting. Severe poisoning can cause shock, unconsciousness and convulsions. |
| Skin | Irritation or pain may occur at the site of contact. There may be redness or whiteness of the skin in the area of exposure. Absorption through the skin may be fatal. |
| Eyes | There may be pain and redness. The vision may become blurred. The eyes may water profusely. Absorption through the eye may cause effects similar to skin and/or ingestion. |
| Delayed / Immediate Effects | Immediate effects can be expected after short-term exposure. |

Additional Information

RTECS: I01450000

12. ECOLOGICAL INFORMATION

| | |
|---|--|
| Toxicity | no information available |
| Persistence and degradability | no information available |
| Biodegradation | no information available |
| Mobility in soil | no information available |
| Results of PBT and vPvB assessment | no information available |
| Other adverse effects | no information available |
| Additional information | May be harmful to the aquatic environment. |

13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION**IATA, IMDG, DOT(US)**

| | |
|-----------------------------|---|
| UN number | UN3462 |
| UN proper shipping name | Toxins, extracted from living sources, solid, n.o.s. (Tetrodotoxin) |
| Transport hazard class | 6.1 |
| Packing group | I |
| Environmental hazards | none |
| Special precaution for user | none |

15. REGULATION INFORMATION**US Federal Regulations**

US Toxic Substances Control Act(TSCA): Not listed
SARA 302: No chemicals were found.
SARA 313: No chemicals were found.
SARA 311/312 Hazards: No chemicals were found.

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008

Prepared by: Regulatory Department
Biotium Inc.

Version no. 2

Reason for revision Application of CLP labeling and corresponding requirements

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.