

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCES/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1. Product Identifiers**
- Product Code(s)** HB1035
- Product Name** Tetrodotoxin citrate
- 1.2. Relevant identified uses of the substance or mixture and uses advised against**
- Recommended use** For research use only – Not for human use
- Uses advised against** No information available
- 1.3. Details of the supplier of the safety data sheet**
- Supplier**
- Hello Bio Ltd
Unit 3 IO Centre
Cabot Park
Moorend Farm Avenue
Avonmouth
Bristol
BS11 0QL
UK
Tel: +44 (0)117 318 0505
Fax: +44 (0)1179 811 601
- For further information, please contact: technicalsupport@hellobio.com
- 1.4. Emergency Telephone number**
- Emergency telephone** - Tel: +44 (0)117 318 0505

2. HAZARDS IDENTIFICATION

- 2.1. Classification of the substance or mixture**
- GHS/CLP – REGULATION (EC) No 1272/2008**
- | | |
|--------------------------------------|------------|
| Acute oral toxicity | Category 1 |
| Acute dermal toxicity | Category 1 |
| Acute inhalation toxicity – dus/mist | Category 2 |
- DSD/DPD – Classification according to EU Directives 67/548/EEC or 1999/45/EC**
- T - Toxic
- R23/24/25 – Toxic by inhalation, in contact with skin and if swallowed

2.2. Label Elements



Signal Word

Danger

Hazard Statements

H300 – Fatal if swallowed

H310 – Fatal in contact with skin

H330 – Fatal if inhaled

Precautionary Statements

P301 + P310 - IF SWALLOWED: Immediately call 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/vapours/pray

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 use

Other hazards

Caution – substance not yet completely tested

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Product Name: Tetrodotoxin citrate

Synonyms: TTX citrate

Formula: $C_{11}H_{17}N_3O_8 \cdot \text{salt} \cdot H_2O$

Molecular Weight: 319.27

CAS Number 18660-81-6

Component	EC-No	CAS-No	Concentration (weight %)	Classification (Reg. 1272/2008)	REACH Number
Tetrodotoxin	224-458-8	4368-28-9	20%	R23/24/25 Acute oral tox 1 (H300) Acute dermal tox (H310) Acute inhalation toxicity – dus/mist (H330)	no data available

Sodium citrate	200-675-3	6132-04-3	73%	-	no data available
Citric acid	201-069-1	77-92-9	7%	Eye Irrit. 2 STOT SE 3 H319, H335	no data available

4. FIRST AID MEASURES

4.1. Description of first aid measures

General advice

If symptoms persist, call a physician.

Eye contact

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

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician 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 centre immediately.

Inhalation

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

Protection of first-aiders

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

4.2. Most important symptoms and effects, both acute and delayed

Exposure may cause the following: Lip tingling sensation, numbness, weakness, convulsions or seizure. Exposure may be fatal if allowed to enter the blood stream. Death can occur within 30 minutes of exposure.

4.3. Indication of immediate medical attention and special treatment needed

Treat symptomatically

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.2. Special hazards arising from the substance or mixture

In combustion, may emit toxic fumes.

5.3. Precautions for fire-fighters

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

6. ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures**
Do not take action without suitable protective clothing – see section 8 of SDS. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapours, mist, dust or gas.
- 6.2. Environmental precautions**
Do not let product enter drains.
- 6.3. 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 disposal is complete. Hold all material for appropriate disposal as described under section 13 of SDS.
- 6.4. Reference to other sections**
For required PPE see section 8. For disposal see section 13.

7. HANDLING AND STORAGE

- 7.1. 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.
- 7.2. Conditions for safe storage, including any incompatibilities.**
Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use. Recommended storage temperature: Store at -20°C
- 7.3. Specific end uses**
Use in a laboratory fume hood where possible. Refer to employer's COSHH risk assessment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1. Control parameters**
- Components with workplace control parameters**
Contains no substances with occupational exposure limit values.
- 8.2. Exposure controls**
- Appropriate engineering controls**
Use in a fume hood where applicable. Ensure all engineering measures described under section 7 of SDS are in place. Ensure laboratory is equipped with a safety shower and eye wash station.
- Personal protective equipment**
- Eye/face protection**
Use appropriate safety glasses.
- Skin protection**
Use appropriate chemical resistant gloves (minimum requirement use standard BS EN 374:2003). Gloves should be inspected before use. Wash and dry hands thoroughly after handling.
- Body protection**
Wear appropriate protective clothing.

Respiratory protection

If risk assessment indicates necessary, use a suitable respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	White or colourless lyophilised solid	Vapour pressure	No data available
Odour	No data available	Vapour density	No data available
Odour threshold	No data available	Relative density	No data available
pH	No data available	Solubility(ies)	Water
Melting/freezing point	No data available	Partition coefficient	No data available
Boiling point/range	No data available	Auto-ignition temperature	No data available
Flash Point	No data available	Decomposition temperature	No data available
Evaporation rate	No data available	Viscosity	No data available
Flammability (solid, gas)	No data available	Explosive properties	No data available
Upper/lower flammability or explosive limits	No data available	Oxidising properties	No data available

9.2. Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1. Reactivity

Stable under recommended transport or storage conditions.

10.2. Chemical Stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions will not occur under normal transport or storage conditions.

10.4. Conditions to avoid

Heat, moisture

10.5. Incompatible materials

Strong acids/alkalis, strong oxidising/reducing agents.

10.6. Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x).

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute Toxicity

Inhalation

Very toxic by inhalation

Eye contact

No Information available

Skin contact

May be fatal if absorbed through skin

Ingestion

May be fatal if swallowed

Chronic toxicity

Corrosivity

No Information available

Sensitization	No Information available
Neurological effects	No Information available
Reproductive toxicity	No Information available
Mutagenic effects	No Information available
Target Organ Effects	No Information available

12. ECOLOGICAL INFORMATION

- 12.1. Toxicity
Ecotoxicity effects**
- As supplied, the preparation is not expected to present significant adverse environmental effects
- 12.2. Persistence and degradability**
No Information available
- 12.3. Bioaccumulative potential**
No Information available
- 12.4. Mobility in soil**
No Information available
- 12.5. Results of PBT and vPvB assessment**
No Information available
- 12.6. Other adverse effects**
No Information available

13. DISPOSAL CONSIDERATIONS

- 13.1. Waste treatment methods**
- Waste from residues/unused products**
Dispose of in accordance with local regulations
- Contaminated packaging**
Empty containers should be taken to an approved waste handling site for recycling or disposal.
- Other information**
According to the European Waste Catalogue. Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

14. TRANSPORT INFORMATION

ADR	Excepted Quantity
Proper shipping name	Toxins, extracted from living sources, solid, n.o.s. (Tetrodotoxin)
Hazard Class	6.1
UN/ID No	3462
Packing Group	I
IATA	Excepted Quantity

Proper shipping name	Toxins, extracted from living sources, solid, n.o.s. (Tetrodotoxin)
Hazard Class	6.1
UN/ID No	3462
Packing Group	I
DOT	Excepted Quantity
Proper shipping name	Toxins, extracted from living sources, solid, n.o.s. (Tetrodotoxin)
Hazard Class	6.1
UN/ID No	3462
Packing Group	I

15. REGULATORY INFORMATION

- 15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No information available
- 15.2. **Chemical Safety Assessment**
No information available

16. OTHER INFORMATION

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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 stated in the text.