

## Chemical Safety Data Sheet MSDS / SDS

## TETRODOTOXIN

Revision Date:2026-03-20 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier**

Product name : TETRODOTOXIN  
CBnumber : CB0489528  
CAS : 4368-28-9  
EINECS Number : 224-458-8  
Synonyms : TTX

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

**GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

**Precautionary statements**

P361 Remove/Take off immediately all contaminated clothing.  
P363 Wash contaminated clothing before reuse.  
P501 Dispose of contents/container to.....  
P405 Store locked up.  
P322 Specific measures (see ...on this label).  
P310 Immediately call a POISON CENTER or doctor/physician.  
P302+P350 IF ON SKIN: Gently wash with plenty of soap and water.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P270 Do not eat, drink or smoke when using this product.  
P264 Wash skin thoroughly after handling.

P262 Do not get in eyes, on skin, or on clothing.

P501 Dispose of contents/container to.....

P405 Store locked up.

P330 Rinse mouth.

P321 Specific treatment (see ... on this label).

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P270 Do not eat, drink or smoke when using this product.

P264 Wash skin thoroughly after handling.

P501 Dispose of contents/container to.....

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P320 Specific treatment is urgent (see ... on this label).

P310 Immediately call a POISON CENTER or doctor/physician.

P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P284 Wear respiratory protection.

P271 Use only outdoors or in a well-ventilated area.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

#### **Hazard statements**

H310 Fatal in contact with skin

H300 Fatal if swallowed

H330 Fatal if inhaled

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name : TETRODOTOXIN

Synonyms : TTX

CAS : 4368-28-9

EC number : 224-458-8

MF : C11H17N3O8

MW : 319.27

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

#### **After inhalation**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

#### **After skin contact**

Immediately wash with water and soap and rinse thoroughly.

#### **After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

#### **After swallowing**

Do not induce vomiting; immediately call for medical help.

#### **Most important symptoms and effects, both acute and delayed**

No further relevant information available.

#### **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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## SECTION 5: Firefighting measures

### **Extinguishing media**

#### **Suitable extinguishing agents**

Use fire fighting measures that suit the environment.

A solid water stream may be inefficient.

#### **Special hazards arising from the substance or mixture**

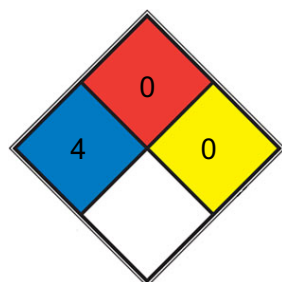
No further relevant information available.

#### **Advice for firefighters**

#### **Protective equipment**

Mouth respiratory protective device.

#### **NFPA 704**



■ HEALTH 4 Very short exposure could cause death or major residual injury (e.g. hydrogen cyanide, phosgene, methyl isocyanate, [hydrofluoric acid](#))

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Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete,

FIRE 0 stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

SPEC.

HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Not required.

### Environmental precautions

Do not allow to enter sewers/ surface or ground water.

### Methods and material for containment and cleaning up

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

### Protective Action Criteria for Chemicals

#### PAC-1

6.30E-05 mg/m<sup>3</sup>

#### PAC-2

0.00069 mg/m<sup>3</sup>

#### PAC-3

0.0041 mg/m<sup>3</sup>

### Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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## SECTION 7: Handling and storage

### Precautions for safe handling

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

### Information about protection against explosions and fires

Keep respiratory protective device available.

### **Conditions for safe storage, including any incompatibilities**

#### **Storage**

Store in accordance with information listed on the product insert.

#### **Requirements to be met by storerooms and receptacles**

No special requirements.

#### **Information about storage in one common storage facility**

Not required.

#### **Further information about storage conditions**

Keep receptacle tightly sealed.

#### **Specific end use(s)**

No further relevant information available.

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## **SECTION 8: Exposure controls/personal protection**

### **Control parameters**

#### **Components with limit values that require monitoring at the workplace**

Not required.

#### **Additional information**

The lists that were valid during the creation were used as basis.

### **Exposure controls**

#### **Appropriate engineering controls**

No further data; see section 7.

#### **Personal protective equipment**

#### **General protective and hygienic measures**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

#### **Breathing equipment**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

## Protection of hands

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

## Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

## Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

## Eye protection

Not required.

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# SECTION 9: Physical and chemical properties

## Information on basic physicochemical properties

### Physical State

Solid

### Color

white

### Odor

Characteristic

### Structural Formula

C<sub>11</sub>H<sub>17</sub>N<sub>3</sub>O<sub>8</sub>

### Molecular Weight

319.3 g/mol

### Storage Buffer

### Odor Threshold

Not determined.

### Formulation

### Melting point/Melting range

Undetermined.

### Boiling point/Boiling range

458.31°C (rough estimate)

### **Flammability**

Product is not flammable.

### **Explosion limits**

Lower: Not determined.

Upper: Not determined.

### **Flash point**

Not applicable.

### **Decomposition temperature**

Not determined.

### **pH**

Not applicable.

### **Viscosity**

### **Kinematic**

Not applicable.

### **SOLUBILITY**

Acidic Buffer (pH 4.8): 3 mM

### **Dynamic**

Not applicable.

### **Solubility in / Miscibility with**

H<sub>2</sub>O: stable at pH 4-5 if stored frozen soluble

### **Water**

Not determined.

### **Partition coefficient (n-octanol/water)**

Not determined.

### **Vapor Pressure**

Not applicable.

### **Density**

1.3768 (rough estimate)

### **Relative Density**

1.3768 (rough estimate)

**Vapor Density**

Not applicable.

**Particle characteristics**

Not determined.

**Other information****Appearance****Form**

Solid

**Important information on protection of health and environment, and on safety.****Ignition temperature**

Not determined.

**Danger of explosion**

Product does not present an explosion hazard.

**Change in condition****Evaporation Rate**

Not applicable.

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**SECTION 10: Stability and reactivity****Reactivity**

No further relevant information available.

**Chemical stability****Thermal decomposition / conditions to be avoided**

No decomposition if used according to specifications.

**Possibility of hazardous reactions**

No dangerous reactions known.

**Conditions to avoid**

No further relevant information available.

**Incompatible materials**

strong acids, strong bases, strong oxidizing agents, strong reducing agents

**Hazardous decomposition products**

No dangerous decomposition products known.

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## SECTION 11: Toxicological information

### RTECS Number

IO1450000

### Information on toxicological effects

#### Acute toxicity

LD/LC50 values that are relevant for classification:

Route	Endpoint	Value
Oral	LD50	334 µg/kg (mouse)
Intraperitoneal	LD50	8 µg/kg (mouse)
Subcutaneous	LD50	8 µg/kg (mouse)

#### Primary irritant effect

##### on the skin

No irritant effect.

##### on the eye

No irritating effect.

#### Sensitization

No sensitizing effects known.

#### Additional toxicological information

##### Interactive effects

No interactive effects between components are known.

#### Carcinogenic categories

##### IARC (International Agency for Research on Cancer)

Substance is not listed.

##### NTP (National Toxicology Program)

Substance is not listed.

##### OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

#### Alternative sources for toxicological information

No non-standard sources for toxicological information where used.

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## SECTION 12: Ecological information

### **Toxicity**

#### **Aquatic toxicity**

No further relevant information available.

#### **Persistence and degradability**

No further relevant information available.

#### **Bioaccumulative potential**

No further relevant information available.

#### **Mobility in soil**

No further relevant information available.

### **Results of PBT and vPvB assessment**

#### **PBT**

Not applicable.

#### **vPvB**

Not applicable.

#### **PBT:**

Not applicable.

#### **vPvB:**

Not applicable.

### **Other adverse effects**

### **Additional ecological information**

#### **General notes**

Water hazard class 3 (Assessment by list): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

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## SECTION 13: Disposal considerations

### **Waste treatment methods**

## Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

## Uncleaned packagings

## Recommendation

Disposal must be made according to official regulations.

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# SECTION 14: Transport information

## UN-Number

DOT, IMDG, IATA UN2811

## UN proper shipping name

DOT Toxic solids, organic, n.o.s. (Tetrodotoxin (citrate free))

IMDG TOXIC SOLID, ORGANIC, N.O.S. (Tetrodotoxin (citrate free))

IATA Toxic solid, organic, n.o.s. (Tetrodotoxin (citrate free))

## Transport hazard class(es)

### DOT

Class: 6.1 Toxic substances

Label: 6.1

### IMDG, IATA

Class: 6.1 Toxic substances

Label: 6.1

## Packing group

DOT, IMDG, IATA I

## Environmental hazards

Not applicable.

## Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

## Transport/Additional information

**DOT:**

## Quantity limitations

On passenger aircraft/rail: 5 kg

On cargo aircraft only: 50 kg

**IMDG:**

### Limited quantities (LQ)

0

### Excepted quantities (EQ)

Code: E5

Maximum net quantity per inner packaging: 1 g

Maximum net quantity per outer packaging: 300 g

### IATA:

### Remarks

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

### Special precautions for user

Warning: Toxic substances

### Hazard identification number (Kemler code)

66

### EMS Number

F-A, S-A

### Stowage Category

B

### UN "Model Regulation"

UN 2811 TOXIC SOLID, ORGANIC, N.O.S.  
(TETRODOTOXIN (CITRATE FREE)), 6.1, I

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## SECTION 15: Regulatory information

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

No further relevant information available.

### Sara

Section 355 (extremely hazardous substances):	Substance is not listed.
Section 313 (Specific toxic chemical listings):	Substance is not listed.
TSCA (Toxic Substances Control Act):	Substance is not listed.
Hazardous Air Pollutants:	Substance is not listed.
Chemicals known to cause cancer:	Substance is not listed.

Chemical Book

Chemicals known to cause reproductive toxicity for females:	Substance is not listed.
Chemicals known to cause reproductive toxicity for males:	Substance is not listed.
Chemicals known to cause developmental toxicity:	Substance is not listed.

### **Carcinogenic categories**

EPA (Environmental Protection Agency):	Substance is not listed.
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### **TLV (Threshold Limit Value)**

Substance is not listed.

### **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

### **Chemical safety assessment**

A Chemical Safety Assessment has not been carried out.

## **SECTION 16: Other information**

### **Abbreviations and acronyms**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute toxicity - oral 2: Acute toxicity – Category 2

Acute toxicity - inhalation 1: Acute toxicity – Category 1

#### **Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.