

Material Safety Data Sheet

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Version 1.4

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name TETRODOTOXIN WITHOUT CITRATE BUFFER
Product Number T8024

Company Sigma-Aldrich Pty, Ltd
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Australia

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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
TETRODOTOXIN	4368-28-9	224-458-8	None

Formula C11H17N3O8
Molecular Weight 319.3 AMU
Synonyms Fugu poison * Maculotoxin * Spheroidine *
Tarichatoxin * Tetrodontoxin * Tetrodotoxin *
Tetrodoxin * TTX

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Very toxic by inhalation, in contact with skin and if swallowed.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

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

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Spilled material should be carefully wiped up or moistened with water and removed. Decontaminate any spill with 10% caustic solution. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed.
Store at 2-8°C

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance

Physical State: Solid
Color: White
Form: Powder

Property

Value At Temperature or Pressure

pH

N/A

BP/BP Range	N/A
MP/MP Range	N/A
Flash Point	N/A
Flammability	N/A
Autoignition Temp	N/A
Oxidizing Properties	N/A
Explosive Properties	N/A
Explosion Limits	N/A
Vapor Pressure	N/A
SG/Density	N/A
Partition Coefficient	N/A
Viscosity	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
Evaporation Rate	N/A
Bulk Density	N/A
Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	< 5 %
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	N/A

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: IO1450000

ACUTE TOXICITY

LD50
Oral
Mouse
0.334 mg/kg

LD50
Intraperitoneal
Mouse
8 UG/KG

LD50
Subcutaneous
Mouse
8 UG/KG

LD50
Intravenous
Mouse
7300 NG/KG

Remarks: Behavioral:Convulsions or effect on seizure threshold.

LD50

Intracerebral

Mouse

600 NG/KG

Remarks: Behavioral:Convulsions or effect on seizure threshold.
Behavioral:Ataxia.

LD50

Intraperitoneal

Frog

14 UG/KG

Remarks: Peripheral Nerve and Sensation:Spastic paralysis with
or without sensory change.

SIGNS AND SYMPTOMS OF EXPOSURE

Tetrodotoxin is among the most toxic substances known to man. Death can occur within 30 minutes. It is extremely dangerous by ingestion, inhalation and skin absorption, or if it enters the bloodstream in any manner. Symptoms of poisoning which include numbness, tingling of the lips and inner mouth surfaces, weakness, paralysis of the limbs and chest muscles, and a drop in blood pressure have been reported within as little as 10 minutes after exposure. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be fatal if absorbed through skin.

Eye Contact: May cause eye irritation.

Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be fatal if swallowed.

TARGET ORGAN INFORMATION

Nerves. Skeletal muscle.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. After use, utensils and the toxin solution should be soaked overnight or boiled for 20 minutes in an excess amount of 2% sodium hydroxide solution or sodium hypochlorite (1% available chlorine) solution in a hood or well ventilated area. 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 environmental regulations.

14 - Transport Information

RID/ADR

UN#: 3462

Class: 6.1

PG: I

Proper Shipping Name: Toxins, extracted from living sources, solid, n.o.s.

IMDG

UN#: 3462
Class: 6.1
PG: I
Proper Shipping Name: Toxins, extracted from living sources, solid, n.o.s.
Marine Pollutant: No
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 3462
Class: 6.1
PG: I
Proper Shipping Name: Toxins, extracted from living sources, solid, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: T+

Very toxic.

R-PHRASES: 26/27/28

Very toxic by inhalation, in contact with skin and if swallowed.

S-PHRASES: 22 36/37/39 45

Do not breathe dust. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 3

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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