

CRM-TTX

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Date of issue: 2019-08-12

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Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : CRM-TTX
Product code : Not available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Certified Calibration Solution for Tetrodotoxin, for laboratory use only

1.3. Details of the supplier of the safety data sheet

National Research Council Canada
1411 Oxford Street
Halifax, Nova Scotia, Canada B3H 3Z1
T 1-902-426-8281



National Research
Council Canada

Conseil national de
recherches Canada

1.4. Emergency telephone number

Emergency number : CANUTEC 1-613-996-6666

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS classification

Not classified

2.2. Label elements

GHS labelling

No labeling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	% (by weight)
Water	(CAS-No.) 7732-18-5	99.99
Acetic acid	(CAS-No.) 64-19-7	0.006
Tetrodotoxin (TTX)	(CAS-No.) 4368-28-9	0.00068

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.

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| First-aid measures after eye contact | : In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention. |
| First-aid measures after ingestion | : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell. |

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

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|-------------------------------------|--|
| Symptoms/effects after inhalation | : May cause irritation to the respiratory tract. |
| Symptoms/effects after skin contact | : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin. |
| Symptoms/effects after eye contact | : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling. |
| Symptoms/effects after ingestion | : May be harmful if swallowed. May cause stomach distress, nausea or vomiting. Ingestion of sufficient quantities of TTX can cause paralysis and even death. |

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

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| Suitable extinguishing media | : Treat for surrounding material. |
| Unsuitable extinguishing media | : None known. |

5.2. Special hazards arising from the substance or mixture

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|-------------|---------------|
| Fire hazard | : None known. |
|-------------|---------------|

5.3. Advice for firefighters

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| Protection during firefighting | : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). |
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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| General measures | : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. |
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6.2. Methods and material for containment and cleaning up

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|-------------------------|---|
| For containment | : Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE). |
| Methods for cleaning up | : Scoop up material and place in a disposal container. Provide ventilation. |

6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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| Precautions for safe handling | : Avoid contact with skin and eyes. Avoid breathing vapour or mist. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. |
| Hygiene measures | : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking. |

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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store at -12 °C / +10.4 °F or below.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Tetrodotoxin (TTX) (4368-28-9)		
ACGIH	Not applicable	
OSHA	Not applicable	
IDLH	Not applicable	
NIOSH	Not applicable	
Acetic acid (64-19-7)		
ACGIH	ACGIH TWA (ppm)	10 ppm
ACGIH	ACGIH STEL (ppm)	15 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	25 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	10 ppm
IDLH	US IDLH (ppm)	50 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	25 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (STEL) (mg/m³)	37 mg/m³
NIOSH	NIOSH REL (STEL) (ppm)	15 ppm
Water (7732-18-5)		
ACGIH	Not applicable	
OSHA	Not applicable	
IDLH	Not applicable	
NIOSH	Not applicable	

8.2. Exposure controls

Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Hand protection : Wear suitable gloves.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls : Maintain levels below Community environmental protection thresholds.

Other information : Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear colourless liquid
Colour	: Colourless
Odour	: Slight vinegar
Odour threshold	: No data available
pH	: 4
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not flammable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 0.99766 g/mL
Solubility	: No data available
Partition coefficient n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

None known.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified.
Acute toxicity (dermal)	: Not classified.
Acute toxicity (inhalation)	: Not classified.

Tetrodotoxin (TTX) (4368-28-9)	
LD50 oral mouse	232 µg/kg
Acetic acid (64-19-7)	
LD50 oral rat	3310 mg/kg
LD50 dermal rabbit	1060 mg/kg
LC50 inhalation rat	11.4 mg/L/4h
Water (7732-18-5)	
LD50 oral rat	> 90 mL/kg

Skin corrosion/irritation	: Based on available data, the classification criteria are not met. pH: 4
Serious eye damage/irritation	: Based on available data, the classification criteria are not met. pH: 4
Respiratory or skin sensitisation	: Based on available data, the classification criteria are not met.
Germ cell mutagenicity	: Based on available data, the classification criteria are not met.
Carcinogenicity	: Based on available data, the classification criteria are not met.
Reproductive toxicity	: Based on available data, the classification criteria are not met.
STOT-single exposure	: Based on available data, the classification criteria are not met.
STOT-repeated exposure	: Based on available data, the classification criteria are not met.
Aspiration hazard	: Based on available data, the classification criteria are not met.
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: May be harmful if swallowed. May cause stomach distress, nausea or vomiting. Ingestion of sufficient quantities of TTX can cause paralysis and even death.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: May cause long-term adverse effects in the aquatic environment.
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Acetic acid (64-19-7)	
LC50 fish 1	79 mg/L (Exposure time: 96 h - Species: <i>Pimephales promelas</i> [static])
EC50 Daphnia 1	65 mg/L (Exposure time: 48 h - Species: <i>Daphnia magna</i> [static])
LC50 fish 2	75 mg/L (Exposure time: 96 h - Species: <i>Lepomis macrochirus</i> [static])

12.2. Persistence and degradability

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Persistence and degradability	Not established.

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12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.
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Acetic acid (64-19-7)

Partition coefficient n-octanol/water	-0.31 (at 20 °C)
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations	: This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.
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SECTION 14: Transport information

Department of Transportation (DOT) and Transportation of Dangerous Goods (TDG)

In accordance with DOT/TDG

Not regulated for transport

Additional information

Other information	: No supplementary information available.
Special transport precautions	: Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Tetrodotoxin (TTX)	CAS-No. 4368-28-9
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All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories except for:

Tetrodotoxin (TTX)	CAS-No. 4368-28-9
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Acetic acid (64-19-7)

CERCLA RQ	5000 lb
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15.2 US State regulations

No additional information available

SECTION 16: Other information

Date of issue	: 2019-08-12
Revision date	: 2019-08-12
Other information	: None.
Version #	: 1.0
Prepared by	: Nexreg Compliance Inc.

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DISCLAIMER:

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

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