

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

RM Number: 8642
MSDS Number: 8642
RM Name: FDA Saxitoxin Dihydrochloride
Solution

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Description: A unit of Reference Material (RM) 8642 consists of ten, amber borosilicate ampoules, each containing approximately 1.2 mL of solution.

Substance: Saxitoxin dihydrochloride/ethanol solution

Other Designations:

Saxitoxin (saxidomus giganteus poison; mytilus californianus poison; gonyaulax catenella poison; saxitoxin hydrate)

Ethanol (grain alcohol; ethyl hydroxide; absolute alcohol)

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Components	CAS Numbers	EC Number (EINECS)	Nominal Concentration
Saxitoxin dihydrochloride	35554-08-6	NA	103 µg/g
Ethanol, solution	64-17-5	200-578-6	20 % v/v

^(a) Hazardous components 1 % or greater; carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200

NOTE: Any hazard associated with the ethanol contained in this solution is minor compared to the toxicity of the saxitoxin dihydrochloride. The information provided in this MSDS is for saxitoxin dihydrochloride unless otherwise indicated.

EC Classification (assigned): Not determined

EC Risk (R): Not determined

EC Safety (S): Not determined

EC Risk/Safety Phrases: See Section 15 "Regulatory Information"

3. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 4 Fire = 1 Reactivity = 0

Physical Hazards: This material poses a minor flammability hazard.

Major Health Hazards: Saxitoxin is a potent neurotoxin that meets the OSHA definition for a highly toxic chemical. Saxitoxin is a paralytic poison that attacks the central nervous system by acting as a muscular nerve block. The fatality rate is dependent on dose and quick access to advanced medical care. Symptoms appear from minutes to hours after exposure.

Potential Health Effects

Inhalation: Inhalation of mist or aerosols containing saxitoxin may be fatal.

Skin Contact: May cause skin irritation.

Eye Contact: Eye contact with this material may cause irritation.

Ingestion: Acute symptoms of saxitoxin poisoning may begin with muscle incoordination, numbness of the lips, tongue, face, neck, and extremities, flaccid paralysis, respiratory distress due to respiratory paralysis, and death if left untreated.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u>X</u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u>X</u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u>X</u>

4. FIRST AID MEASURES

Inhalation: Avoid inhalation of mists or aerosols. If adverse effects occur, remove to uncontaminated area. Seek immediate medical attention.

Skin Contact: Wash exposed skin with copious amounts of water for at least 15 minutes. Remove any contaminated clothing. Seek immediate medical attention.

Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: If swallowed, seek immediate medical attention. If not breathing give artificial respiration.

NOTE: Provide Emergency Medical Technician (EMT) with the MSDS or show container or label.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Ethanol 20 %.

Extinguishing Media: Use extinguishing agents appropriate for the surrounding fire.

Fire Fighting: Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point (°C): 36 (97 °F).

Method Used: Closed cup.

Autoignition Temp. (°C): 363 (685 °F).

Flammability Limits in Air

Upper Explosive Limit (UEL): 19 %.

Lower Explosive Limit (LEL): 3.3 %.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Evacuate area. Avoid generating mist or aerosol. Wearing Personal Protective Equipment (PPE), see Section 8 “Exposure Controls and Personal Protection”, collect spilled material and place in an appropriate container for proper disposal. Ventilate and thoroughly wash spill area after material removal.

Disposal: Refer to Section 13, “Disposal Considerations”.

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards. Store unopened ampoules upright under normal laboratory conditions inside the original container supplied by NIST.

Safe Handling Precautions: See Section 8, “Exposure Controls and Personal Protection”.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: There are no established exposure limits for this highly toxic material.

Ventilation: Use only in a chemical fume hood.

Respirator: A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator. Refer to the “NIOSH Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR 84” for selection and use of respirators certified by NIOSH.

Eye Protection: Wear face shield and safety goggles. An eye wash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and chemically resistant gloves to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: Saxitoxin dihydrochloride/ethanol solution

Physical State: Liquid

Appearance and Odor: Clear, alcohol odor

Molar Mass: Not available.

Specific Gravity: Not available.

Water Solubility: Soluble.

Solvent Solubility: Methanol; ethanol; glacial acetic acid.

pH: Not available.

10. STABILITY AND REACTIVITY

Stability: Stable Unstable

Conditions to Avoid: Heat or open flame.

Incompatible Materials: Oxidizers.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Oxides of carbon; oxides of nitrogen; hydrogen chloride.

Hazardous Polymerization: Will Occur Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: Inhalation Skin Ingestion

Toxicity Data:

Rat, Oral LD₅₀: 192 µg/kg

Cat, Oral LD₅₀: 254 µg/kg

Mouse, Oral LD₅₀: > 10 µg/kg

Human, minimum fatal dose: 1.0 to 4.0 mg

Health Effects (Acute and Chronic): See section 3: "Hazards Identification" for potential health effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: Not available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations. Do not discharge into sewers or waterways.

14. TRANSPORTATION INFORMATION

U.S. DOT and ICAO/IATA: Toxic liquid, organic, n.o.s. (saxitoxin dihydrochloride, ethanol) UN2810, 6.1, PG I

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA Sections 102a/103 (40 CFR 302.4): No data for saxitoxin hydrochloride listed.

SARA Title III Sections 302 (40 CFR 355.30): No data for saxitoxin hydrochloride listed.

SARA Title III Sections 304 (40 CFR 355.40): No data for saxitoxin hydrochloride listed.

SARA Title III Sections 313 (40 CFR 372.65): No data for saxitoxin hydrochloride listed.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE: Not listed.

CHRONIC: Not listed.

FIRE: Not listed.

REACTIVE: Not listed.

SUDDEN RELEASE: Not listed.

OSHA Process Safety (29 CFR 1910.119): Not regulated

OSHA List of Toxic and Hazardous Substances: Not listed.

STATE REGULATIONS: None listed.

CANADIAN REGULATIONS: WHMIS Classification: Not determined

EUROPEAN REGULATIONS:

EC Classification (assigned): Not listed.

EC Risk Phrases: Not listed.

EC Safety Phrases: Not listed.

NATIONAL INVENTORY STATUS:

U.S. Inventory (TSCA): Not listed.

TSCA 12 (b) Export Notification: Not listed.

16. OTHER INFORMATION

Sources: US Food and Drug Administration, MSDS *Saxitoxin Dihydrochloride*.
U.S. National Library of Medicine, Hazardous Materials Database, *Saxitoxin*, 14 February 2003
ChemADVISOR, Inc., MSDS *Ethyl alcohol, 20%*, 08 March 2010.
OSHA 29 CFR 1910.1200 Appendix A

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The reference values for this material are given in the NIST Report of Investigation.