

SIGMA-ALDRICH

MATERIAL SAFETY DATA SHEET

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Version 1.5

Section 1 - Product and Company Information

| | |
|---------------------------|---|
| Product Name | BOTULINUM TOXIN A FROM CLOSTRIDIUM BOTULINUM |
| Product Number | B8776 |
| Brand | SIGMA |
| Company | Sigma-Aldrich |
| Street Address | 3050 Spruce Street |
| City, State, Zip, Country | SAINT LOUIS MO 63103 US |
| Technical Phone: | 800-325-5832 |
| Emergency Phone: | 314-776-6555 |
| Fax: | 800-325-5052 |

Section 2 - Composition/Information on Ingredient

| | | |
|---|------------|----------|
| Substance Name | CAS # | SARA 313 |
| BOTULINUM TOXIN A FROM CLOSTRIDIUM BOTULINUM | 93384-43-1 | No |

| | | | |
|--|-------|---------|----------|
| Ingredient Name | CAS # | Percent | SARA 313 |
| The hazards identified with this product are those associated with the following component(s): | None | | |
| BOTULINUM TOXIN SUBUNIT | None | 0.1 | |

Chemical Family Etiological agent.
Synonyms Botulin toxin * Botulinum A neurotoxin *
Neurotoxin, Botulinum A * Toxine botulinique A
(French) * BOTULIN NEUROTOXIN A * BORALIN TOXIN A
* TOXIN BOTULIN A
RTECS Number: ED9300000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Biohazard. Highly Toxic (USA) Very Toxic (EU).
Very toxic by inhalation, in contact with skin and if swallowed.
Irritating to eyes and skin.
Biomedical material. May cause human disease. Target organ(s):
Nerves.

HMIS RATING

HEALTH: 4
FLAMMABILITY: 0
REACTIVITY: 1

NFPA RATING

HEALTH: 4
FLAMMABILITY: 0
REACTIVITY: 1

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

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

INHALATION EXPOSURE

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

DERMAL EXPOSURE

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

EYE EXPOSURE

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.

INFORMATION FOR PHYSICIAN

In certain emergency situations, the Center for Disease Control can supply botulinum toxoid, pentavalent (abcde) an investigational new drug. These biological products are available through the Immunobiologics Bureau of Laboratories, Center for Disease Control in Atlanta, Georgia USA. Phone requests may be made to CDC at USA 404-639-3311 from 8:00 am to 4:30 PM Monday through Friday. After working hours or on weekends and holidays call USA 404-639-2888. Advise the physician of the compound to which the person was exposed.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

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

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE 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

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Botulinum toxin a should be handled in a closed system. All operations should be carried out in a glove bag of similar enclosure to avoid accidental contact. Do not use if skin is cut or scratched. Wash thoroughly after handling. Handle as if capable of transmitting infectious agents. Container should be opened only by a technically qualified person.

STORAGE

Suitable: Keep tightly closed.
Store at -20°C

SPECIAL REQUIREMENTS

Light sensitive. Heat sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

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

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

| | | |
|-----------------------|-----------------------|----------------------------|
| Appearance | Physical State: Solid | |
| Property | Value | At Temperature or Pressure |
| pH | N/A | |
| BP/BP Range | N/A | |
| MP/MP Range | N/A | |
| Freezing Point | N/A | |
| Vapor Pressure | N/A | |
| Vapor Density | N/A | |
| Saturated Vapor Conc. | N/A | |
| SG/Density | N/A | |
| Bulk Density | N/A | |
| Odor Threshold | N/A | |
| Volatile% | N/A | |
| VOC Content | N/A | |
| Water Content | N/A | |
| Solvent Content | N/A | |
| Evaporation Rate | N/A | |

| | |
|-----------------------|-----|
| Viscosity | N/A |
| Surface Tension | N/A |
| Partition Coefficient | N/A |
| Decomposition Temp. | N/A |
| Flash Point | N/A |
| Explosion Limits | N/A |
| Flammability | N/A |
| Autoignition Temp | N/A |
| Refractive Index | N/A |
| Optical Rotation | N/A |
| Miscellaneous Data | N/A |
| Solubility | N/A |

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Direct sunlight Heat.

Materials to Avoid: Avoid contact with alkali.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Nature of decomposition products not known.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be fatal if absorbed through skin.

Eye Contact: Causes eye irritation.

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

Ingestion: May be fatal if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

This toxin is among the most powerful paralytic poisons known, having irreversible effects. Considered a lethal neurotoxin, 1ug may be fatal if swallowed or inhaled. Orl-man LD50:1ug/man (Microbial Toxins, Vol. IIa,1971). Botulinum toxin acts principally by paralyzing the synapses (junctions) of the peripheral nerves leading to muscles. Physiological changes include nausea, vertigo, pharyngeal pain, blurred vision, constipation, and respiratory paralysis. Type E toxin acts more slowly than type A, which has a rapid time of onset. After ingestion of a sufficient dose of type E toxin, humans show symptoms in 4 to 6 hours, and death occurs in several days. (Frontier 26, (2), 17 ,1965).

TOXICITY DATA

Intramuscular

Rat

96 UNITS/KG

LD50

Remarks: Other changes Skin and Appendages: Other: Hair.

Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Intraperitoneal
Mouse
160 NG/KG
LD50

Subcutaneous
Mouse
4 NG/KG
LD50

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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.

Section 14 - Transport Information

DOT

Proper Shipping Name: Toxins, from living sources,
liquid, n.o.s.
UN#: 3172
Class: 6.1
Packing Group: Packing Group I
Hazard Label: Toxic substances.
PIH: Not PIH

IATA

Proper Shipping Name: Toxins, extracted from living
sources, liquid, n.o.s.
IATA UN Number: 3172
Hazard Class: 6.1
Packing Group: I

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: B-T+
Indication of Danger: Biohazard. Very toxic.
R: 26/27/28-36/38
Risk Statements: Very toxic by inhalation, in contact with skin
and if swallowed. Irritating to eyes and skin.
S: 36/37/39-45
Safety Statements: 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).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Biohazard. Highly Toxic (USA) Very Toxic
(EU).
Risk Statements: Very toxic by inhalation, in contact with skin

and if swallowed. Irritating to eyes and skin.
Safety Statements: 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).
US Statements: Biomedical material. May cause human disease.
Target organ(s): Nerves.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in
accordance with the hazard criteria of the CPR, and the MSDS
contains all the information required by the CPR.
DSL: No
NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

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
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or packing slip for additional terms and conditions of sale.
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