Safety Data Sheet

Botulinum Neurotoxin Type E Complex, Nicked, from *Clostridium botulinum*
Products #140A, #140B

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Botulinum Neurotoxin Type E Complex, Nicked, from *Clostridium botulinum*
Product numbers	:	140A, 140B

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

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	List Biological Laboratories, Inc. 540 Division Street Campbell, CA 95008-6906, USA
Telephone	:	(408) 866-6363 (800) 726-3213
Fax	:	(408) 866-6364

1.4 Emergency telephone number

24 Hour Emergency Phone #	:	1 (800) 255-3924 ChemTel Domestic +1 (813) 248-0585 ChemTel International
ChemTel Customer #	:	MIS2844833

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 1), H300
Skin irritation (Category 2), H315
Eye irritation (Category 2), H320

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word — Danger

Hazard statement(s)

H300 + H310 + H330	Fatal if swallowed or in contact with skin or if inhaled.
H315	Causes skin irritation.
H320	Causes eye irritation.

Precautionary statement(s)

P260	Avoid breathing dust/fume/gas/vapours/spray.
P262	Do not get in eyes, on skin or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use in a well-ventilated area.
P280	Wear protective gloves/ protective clothing.
P282	Wear respiratory protection.
P301 + P314 + P330	IF SWALLOWED: Immediately call a POISON CENTER or

	doctor/physician. Rinse mouth.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable to breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P320	Specific treatment is urgent (see supplemental first aid instructions on this label).
P337 + P313	If eye irritation occurs: Get medical advice/attention.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P233	Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Biohazard. Handle as if capable of transmitting infectious agents.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Mixtures

Synonym : BoNT/E Complex, Nicked

Product #140A, #140B

Component	CAS No.	Percent (%)
Botulinum Neurotoxin Type E Complex, Nicked	N/A	~1
Citric Acid, monohydrate	77-92-9	~12
Sodium Citrate, dihydrate	6132-04-3	~17
Lactose	9004-34-6	~70

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move affected person out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate to surrounding fire conditions.

5.2 Special hazards arising from the substance or mixture
Not flammable or combustible.

5.3 Protective equipment and precautions for fire-fighters
Use an approved/certified respirator.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Wear appropriate laboratory attire including lab coat, gloves and safety glasses. Nitrile gloves are recommended when handling lyophilized material. Avoid formation of dust and aerosols. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust, vapours, mist or gas.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
In case of a spill or a release, take precautions to minimize worker exposure. For spills onto surface areas, the contaminated surface should be thoroughly sprayed or rinsed for at least five minutes with at least a 0.5% sodium hypochlorite solution, then wiped dry. Autoclaving may be applied to contaminated material which is in solution or to which the autoclave steam has access. Autoclaving at ≥121°C, ≥15 psi in a validated cycle will render the product safe.

Hold all material for appropriate disposal as described in Section 13 DISPOSAL CONSIDERATIONS.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Wear appropriate laboratory attire including lab coat, gloves and safety glasses. Nitrile gloves are recommended when handling lyophilized material. Avoid formation of dust and aerosols. Ensure adequate ventilation.

7.2 Conditions for safe storage, including any incompatibilities
Store at 2 – 8°C prior to and following reconstitution.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eyes
Wear safety goggles or glasses.

Skin
Handle with appropriate gloves. Wear nitrile gloves when handling the product in the lyophilized form. Wear appropriate laboratory clothing / lab coat.

Body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Use respirators and components tested and approved under appropriate government standards; or, ensure adequate ventilation using engineering controls, such as, a biological safety cabinet.

9. PHYSICAL AND CHEMICAL PROPERTIES

a)	Appearance	Form: solid; Color: white
b)	Odor	Data not available
c)	Odor threshold	Data not available
d)	pH	Data not available
e)	Melting point / freezing point	Data not available
f)	Initial boiling point and boiling range	Data not available
g)	Flash point	Data not available
h)	Evaporation rate	Data not available
i)	Flammability (solid, gas)	Data not available
j)	Upper/Lower flammability or explosive limits	Data not available
k)	Vapor pressure	Data not available
l)	Vapor density	Data not available
m)	Relative density	Data not available
n)	Solubility(ies)	Easily soluble in water
o)	Partition coefficient: n-octanol/water	Data not available
p)	Auto-ignition temperature	Data not available
q)	Decomposition temperature	Data not available
r)	Viscosity	Data not available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
No data available

11. TOXICOLOGY INFORMATION

11.1 Information on toxicological effects
To the best of our knowledge, the chemical, physical and toxicological properties have not been fully investigated.

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

Oral: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Specific target organ toxicity – single exposure
No data available

Specific target organ toxicity – repeated exposure
No data available

Additional Information
These products are Select Agents & Toxins. Select Agents & Toxins (SA&T) include materials that have been identified by the CDC (Centers for Disease Control and Prevention), DHHS (Dept. of Health and Human Services) and/or the USDA (US Department of Agriculture) as having the potential to pose a severe threat to public health and safety.

Signs and Symptoms of Exposure

Botulinum neurotoxin is a very potent neurotoxin which may be fatal if inhaled, ingested, injected, or introduced into a wound. The incubation period is usually 4 hours to 8 days. Symptoms include muscle weakness (especially in the face and neck early on, then the upper extremities, and finally the lower extremities), fatigue, dizziness, incoordination, an extremely dry mouth, blurred vision, sensitivity to bright lights, difficulty swallowing (drooling), difficulty speaking clearly (slurring), difficulty breathing, nausea, abdominal bloating, constipation, and difficulty urinating. There are no mentation nor sensory abnormalities and no fever.

RTECS: No data available

Toxicity Data References:

Arnon, S.S., Schechter, R. Inglesby T.V. *et.al.* (2001), *JAMA,* **285**, 1059-1070. *Botulinum Toxin as a Biological Weapon: Medical and Public Health Management.*

Gill, D.M., *Microbiol. Rev*. **46**, 86, 1982.

The LD_{50} in mice is estimated at 1.1 ng/kg. Humans are assumed to be at least as sensitive. Estimated lethal amount for a 100 Ib (45.5 kg) human – without treatment or vaccinations – extrapolated from animal studies: 22.8 – 90 ng ip.

12. ECOLOGICAL INFORMATION

Product is unlikely to cause a concern to the environment.

13. DISPOSAL CONSIDERATIONS

Dispose of waste in accordance with appropriate Federal, state and local regulations or applicable governmental requirements.

14. TRANSPORT INFORMATION

IATA

UN number: UN3462 Class: 6.1 Packing group: I

Proper shipping name: Clostridium botulinum

15. REGULATORY INFORMATION

OSHA Hazards
Irritant

SARA
Not subject to reporting requirements and there are no Threshold Planning Quantities for this product.

WHMIS
D3 Biohazardous Infectious Material

Safety Phrases
S22 – Do not breathe dust
S24/25 – Avoid contact with skin and eyes
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection

Risk Phrases
R23/24/25 – Toxic by inhalation, in contact with skin and if swallowed

California Prop. 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

16. OTHER INFORMATION

NFPA Rating

Health Hazard:	4
Fire Hazard:	0
Reactivity Hazard:	0

HMIS Rating

Health Hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard:	0

Version: 3.0 / Issued Date: 01/2019

CAUTION – Not fully tested. For research use only. Not for human use.

The preceding information is based on available data and is believed to be correct, but does not purport to be all inclusive and should be used as a guide in handling this material. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment. The absence of warning must not, under any circumstance, be taken to mean that no hazard exists. List Biological Laboratories, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.