Safety Data Sheet

Shiga Toxin 2 Recombinant from *Escherichia coli*
Product #162
Shiga Like Toxin 2 from *Escherichia coli*
Product #164

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Shiga Toxin 2 Recombinant from *Escherichia coli*
Product number	:	162
Product name	:	Shiga Like Toxin 2 from *Escherichia coli*
Product number	:	164

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 #	:	(800) 424-9300 Chemtrec® Domestic (703) 527-3887 Chemtrec® International
Chemtrec® Customer #	:	13248

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
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)

H315	Causes skin irritation.
H320	Causes eye irritation.
H335	May cause respiratory irritation.

Precautionary statement(s)

P261	Avoid breathing dust/fume/gas/vapours/spray.
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.
P301 + P312 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water
P304 + P340 + P313	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable to breathing. Get medical advice/attention.
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.
P321	Specific treatment (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P233	Keep container tightly closed.

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 : Stx2, Shiga Like Toxin 2, Verotoxin 2

Product #162

Component	CAS No.	Percent (%)
Shiga Toxin 2	N/A	~1
Sodium Chloride (NaCl)	7647-14-5	~42
Tris(hydroxymethyl)aminomethane, free base	77-86-1	~22
Tris(hydroxymethyl)aminomethane, hydrochloride salt	1185-53-1	~28
Trehalose	6138-23-4	~7

Synonym : Stx2, Shiga Toxin 2, Verotoxin 2

Product #164

Component	CAS No.	Percent (%)
Shiga Like Toxin 2	N/A	~1
Sodium Chloride (NaCl)	7647-14-5	~29
Tris(hydroxymethyl)aminomethane, free base	77-86-1	~30
Tris(hydroxymethyl)aminomethane, hydrochloride salt	1185-53-1	~40
Polyvinyl Alcohol	9002-89-5	~0.05

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. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution. 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
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 Product #162 at 2 – 8°C prior to and following reconstitution. DO NOT FREEZE.
Store Product #164 at -80°C.

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.

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

Product #162

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

Product #164

a) Appearance	Form: frozen liquid
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)	Soluble
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
Signs and Symptoms of Exposure
Microgram quantities of Shiga Toxin 2 are lethal for mice, rabbits and other laboratory animals. It can cause kidney failure and neurological complications, as well as necrosis in many other tissues.

RTECS: VU7700000
LD_{50} mice, 25 ng/kg iv; LD_{LO} rat, 20 ng/kg iv

Toxicity Data References:

Yoshimura, K., et al., Infect. Immun. **68**:2254, 2000.
Estimated lethal amount for a 100 lb (45.5 kg) human – without treatment or vaccinations – extrapolated from animal studies: 63.7 µg

Tesh, V., et al., Infect. Immun. **61**:3392-3402, 1993; Lindgren, et al., Infect. Immun. **62**:623-631, 1994.
LD_{50} mice, 0.05 µg/kg.

Richardson, et al., Infect. Immun. **60**:4154-4167, 1992.
LD_{50} rabbit, , 0.2 µg /kg iv.

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

Product #162
UN number: UN3462 Class: 6.1 Packing group: I
Proper shipping name: Escherichia coli
Product #164
UN number: UN3462 Class: 6.1 Packing group: I
Proper shipping name: Escherichia coli

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

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

Chronic Health Hazard: 0

Version: 2.0 / Issued Date: 05/2015

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.