

Safety Data Sheet

Shiga Toxin 2 Recombinant from *Escherichia coli*
Product #162 and Product #162L
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 and 162L

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 : 1 (800) 255-3924 ChemTel Domestic
Phone # +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

H315

H320

Fatal if swallowed

Causes skin irritation.

Causes eye irritation.

Precautionary statement(s)
P264
P270
P280

Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

P301 + P310 + P330

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

P302 + P313 + P332 + P352

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention.

P305 + P338 + P351
P337 + P313

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. If eye irritation occurs, get medical advice/attention.

P362
P405

Take off contaminated clothing and wash before reuse.
Store locked up.

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 #162L and Product #164

Component	CAS No.	Percent (%)
Shiga Toxin 2 (#162L) or Shiga Like Toxin 2 (#164)	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

Consult a physician. Show this safety data sheet to the doctor in attendance.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

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

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. 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, vapors, 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 $\geq 121^{\circ}\text{C}$, ≥ 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 $2 - 8^{\circ}\text{C}$ prior to and following reconstitution. DO NOT FREEZE.

Store Product #162L and 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

General industrial hygiene practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eyes

Use equipment for eye protection tested and approved under appropriate government standards.

Skin

Avoid skin contact. Handle with appropriate gloves. Wear nitrile gloves when handling the product in the lyophilized form. Wear appropriate laboratory clothing / lab coat. Wash and dry hands after use.

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 #162L and 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

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

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

LD₅₀ mice, 25 ng/kg iv; LD_{LO} rat, 20 ng/kg iv

Toxicity Data References:

Russo LM, Melton-Celsa AR, Smith MA, Smith MJ, O'Brien AD. Infect Immun. 2014 Mar;82(3):1213-21. Oral intoxication of mice with Shiga toxin type 2a (Stx2a) and protection by anti-Stx2a monoclonal antibody 11E10. LD₅₀ mice ig of 2.9 µg.

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. LD₅₀ mice, 0.05 µg/kg.

Richardson, et al., Infect. Immun. **60**:4154-4167, 1992. LD₅₀ 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: Toxin, extracted from living sources, solid (Shiga Toxin 2)

Product #162L and Product #164

UN number: UN3172

Class: 6.1

Packing group: I

Proper shipping name: Toxin, extracted from living sources, liquid (Shiga Toxin 2)

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

S24/25 – Avoid contact with skin and eyes

S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection

Risk Phrases

R25 – Toxic if swallowed.

R36/38 – Irritating to eyes and skin.

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

(*) in HMIS rating signifies a chronic health hazard, meaning that long-term exposure to the material could cause a health problem such as emphysema or kidney damage.

Version: 5.0 / Issued Date: 09/2019

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.