1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Lipopolysaccharide, from *Escherichia coli* Type O113
Product numbers: 433

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
Fax: (408) 866-6364

1.4 Emergency telephone number

24 Hour Emergency Phone #: 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 2), H302
Acute toxicity, Inhalation (Category 4), H332

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger
Hazard statement(s)
H300: Fatal if swallowed.
H332: Harmful if inhaled.

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 + P310 + P312 + P330: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
P302 + P352 + P312: IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable to breathing. Get medical advice/attention.
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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipopolysaccharide</td>
<td>93572-42-0</td>
<td>100</td>
</tr>
</tbody>
</table>

#### 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.

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.

**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
- b) Odor
- c) Odor threshold
- d) pH
- e) Melting point / freezing point
- f) Initial boiling point and boiling range
- g) Flash point
- h) Evaporation rate
- i) Flammability (solid, gas)
- j) Upper/Lower flammability or explosive limits
- k) Vapor pressure
- l) Vapor density
- m) Relative density
- n) Solubility(ies)
- o) Partition coefficient: n-octanol/water
- p) Auto-ignition temperature
- q) Decomposition temperature
- r) Viscosity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
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<tr>
<td>Relative density</td>
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<td>Auto-ignition temperature</td>
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<tr>
<td>Decomposition temperature</td>
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</tr>
<tr>
<td>Viscosity</td>
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</tr>
</tbody>
</table>
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
Lipopolysaccharide:
Signs and Symptoms of Exposure
Fever, shock
RTECS: OJ0895400  
LD$_{50}$ rat, 48.3 mg/kg iv; LD$_{50}$ rat, 10 mg/kg ip; TD$_{LO}$ mice, 20 mg/kg oral; TC$_{LO}$ guinea pig, 30,000 mg/m$^3$/1H inhalation; TD$_{LO}$ human, 4 ng/kg iv.

Toxicity Data Reference:
No data available

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: II

15. REGULATORY INFORMATION
OSHA Hazards
Acute toxicity

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

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
Version: 1.0  /  Issued Date: 10/2019

CAUTION – New drug – limited by United States law to investigational 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.