1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name: Alkaline Phosphatase, Calf Intestinal (CIP)
Product No: M0290

Recommended use of the chemical and restrictions on use:
Recommended use: This product is for research and development only
Uses advised against: No information available

Details of the supplier of the safety data sheet:
Supplier Address: New England BioLabs
240 County Road
Ipswich, MA 01938
USA

Company Phone Number: 978-927-5054
800-632-5227 (toll free)
Telefax: 978-921-1350
E-mail address: info@neb.com
Emergency telephone number: 978-927-5054
800-632-5227 (toll free)
9:00am - 5:00pm Monday-Friday EST

2. HAZARDS IDENTIFICATION

Classification
Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Emergency Overview
The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance: Colorless  Physical state: Liquid  Odor: Mild

Hazards not otherwise classified (HNOC)

Other information
Note: No data available
3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

The product contains no substances which at their given concentration, are considered to be hazardous to health.

4. FIRST AID MEASURES

First aid measures

General advice
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact
Wash skin with soap and water.

Inhalation
Remove to fresh air.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed
No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment [PPE]
Use personal protection recommended in Section 8.
Environmental precautions
See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

7. HANDLING AND STORAGE

Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage temperature
Refer to www.neb.com for specific information.

Storage Conditions
Keep/store only in original container.

Incompatible materials
None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol 56-81-5</td>
<td>-</td>
<td>TWA: 15 mg/m$^3$ mist, total particulate TWA: 5 mg/m$^3$ mist, respirable fraction (vacated) TWA: 10 mg/m$^3$ mist, total particulate (vacated) TWA: 5 mg/m$^3$ mist, respirable fraction</td>
<td>-</td>
</tr>
<tr>
<td>Zinc Chloride 7646-85-7</td>
<td>STEL: 2 mg/m$^3$ fume TWA: 1 mg/m$^3$ fume (vacated) TWA: 1 mg/m$^3$ fume (vacated) STEL: 2 mg/m$^3$ fume</td>
<td>TWA: 1 mg/m$^3$ fume (vacated) TWA: 1 mg/m$^3$ fume (vacated) STEL: 2 mg/m$^3$ fume</td>
<td>IDLH: 50 mg/m$^3$ fume TWA: 1 mg/m$^3$ fume STEL: 2 mg/m$^3$ fume</td>
</tr>
</tbody>
</table>

NIOSH IDLH  Immediately Dangerous to Life or Health

Other information
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls
Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).
Skin and body protection
Wear suitable protective clothing and gloves.

Respiratory protection
Use in well ventilated areas.

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>Colorless</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Mild</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Refer to <a href="http://www.neb.com">www.neb.com</a> for specific information</td>
</tr>
<tr>
<td><strong>Melting point / freezing point</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Boiling point / boiling range</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability Limit in Air</strong></td>
<td>No information available</td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Specific gravity</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Water solubility</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Solubility in other solvents</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Partition coefficient</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Autoignition temperature</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Kinematic viscosity</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Dynamic viscosity</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Softening point</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Molecular weight</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>VOC content (%)</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Bulk density</strong></td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No data available.

Chemical stability
Stable under normal conditions.

Possibility of hazardous reactions
Can react briskly with oxidizers - danger of explosion.

Product name: Alkaline Phosphatase, Calf Intestinal (CIP)
Product No: M0290
Specification No: No information available
**Conditions to avoid**

**Incompatible materials**
Strong oxidizing agents.

**Hazardous decomposition products**
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO₂).

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Inhalation**
Avoid breathing vapors or mists. May cause irritation of respiratory tract.

**Eye contact**
Redness. May cause slight irritation.

**Skin contact**
Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

**Ingestion**
May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

**Information on toxicological effects**

**Symptoms**
No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Mild</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Mild</td>
</tr>
<tr>
<td>Irritation</td>
<td>Mild</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Mild</td>
</tr>
<tr>
<td>Sensitization</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**
No information available

**Developmental toxicity**
No information available

**Teratogenicity**
No information available

**STOT - single exposure**
No information available

**STOT - repeated exposure**
No information available

**Chronic toxicity**
No information available

**Subchronic toxicity**
No information available

**Target organ effects**
Eyes, Kidneys, Respiratory system, Skin.

**Neurological effects**
No information available

**Other adverse effects**
No information available

**Aspiration hazard**
No information available

**Numerical measures of toxicity - Product information**

The following values are calculated based on chapter 3.1 of the GHS document  . mg/kg  mg/l

**Product name** Alkaline Phosphatase, Calf Intestinal (CIP)

**Product No** M0290

**Specification No** No information available
12. ECOLOGICAL INFORMATION

Marine pollutant
No information available

Ecotoxicity
No information available

0.15759 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability
No information available

Bioaccumulation
No information available

Mobility
No information available

Other adverse effects
Ozone
No information available
Ozone depletion potential (ODP)
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Relevant Information
Keep out of drains, sewers, ditches and waterways.

Disposal considerations
Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated packaging
Empty containers must be tripled rinsed prior to disposal.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. TRANSPORT INFORMATION

DOT
Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA
Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

Product name
Alkaline Phosphatase,
Calf Intestinal (CIP)

Specifiction No
No information available
US Federal Regulations

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number    Not applicable

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Prepared by          EH&S Manager
978-927-5054

Prepared by          New England BioLabs

Issue date           No data available

Revision note        SDS is valid 3 years from revision date. Contact info@neb.com for latest revision.

Disclaimer
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End of Safety Data Sheet