Section 1. Identification

GHS product identifier : Calf Intestinal Alkaline Phosphatase
Code : 70034
Other means of identification : Not available.
Supplier/Manufacturer : 3420 Central Expressway, Santa Clara CA 95051
In case of emergency : Chemtrec: 1 800 424 9300
Outside USA & Canada: +1 703 527 3887

Section 2. Hazards identification

OSHA/HCS status : Calf Intestinal Alkaline Phosphatase
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Calf Intestinal Alkaline Phosphatase
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Not classified.

GHS label elements

Signal word : Calf Intestinal Alkaline Phosphatase
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
No signal word.
Calf Intestinal Alkaline Phosphatase Dilution Buffer
No signal word.

Hazard statements : Calf Intestinal Alkaline Phosphatase
Causes eye irritation.
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
No known significant effects or critical hazards.
Calf Intestinal Alkaline Phosphatase Dilution Buffer
No known significant effects or critical hazards.

Precautionary statements

General : Calf Intestinal Alkaline Phosphatase
Not applicable.
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Not applicable.
Calf Intestinal Alkaline Phosphatase Dilution Buffer
Not applicable.
Section 2. Hazards identification

Prevention: Calf Intestinal Alkaline Phosphatase
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Calf Intestinal Alkaline Phosphatase Dilution Buffer

Response:

10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Calf Intestinal Alkaline Phosphatase Dilution Buffer

Storage:

Disposal:

Supplemental label elements:

Hazards not otherwise classified:

Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredient name</td>
<td>%</td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase</td>
<td></td>
</tr>
<tr>
<td>glycerol</td>
<td>25 - 50</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.
Section 4. First aid measures

**Description of necessary first aid measures**

**Eye contact**
- **Calf Intestinal Alkaline Phosphatase**
  - Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.

- **10X Calf Intestinal Alkaline Phosphatase Reaction Buffer**
  - Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

- **Calf Intestinal Alkaline Phosphatase Dilution Buffer**
  - Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

**Inhalation**
- **Calf Intestinal Alkaline Phosphatase**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

- **10X Calf Intestinal Alkaline Phosphatase Reaction Buffer**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

- **Calf Intestinal Alkaline Phosphatase Dilution Buffer**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Skin contact**
- **Calf Intestinal Alkaline Phosphatase**
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

- **10X Calf Intestinal Alkaline Phosphatase Reaction Buffer**
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

- **Calf Intestinal Alkaline Phosphatase Dilution Buffer**
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Ingestion**
- **Calf Intestinal Alkaline Phosphatase**
  - Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

- **10X Calf Intestinal Alkaline Phosphatase Reaction Buffer**
  - Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Section 4. First aid measures

If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Calf Intestinal Alkaline Phosphatase, 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer, Calf Intestinal Alkaline Phosphatase Dilution Buffer

Causes eye irritation.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Inhalation: Calf Intestinal Alkaline Phosphatase, 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer, Calf Intestinal Alkaline Phosphatase Dilution Buffer

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Skin contact: Calf Intestinal Alkaline Phosphatase, 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer, Calf Intestinal Alkaline Phosphatase Dilution Buffer

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Ingestion: Calf Intestinal Alkaline Phosphatase, 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer, Calf Intestinal Alkaline Phosphatase Dilution Buffer

May be irritating to mouth, throat and stomach.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: Calf Intestinal Alkaline Phosphatase, 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer, Calf Intestinal Alkaline Phosphatase Dilution Buffer

Adverse symptoms may include the following:
irritation
watering
redness

No specific data.

No specific data.

Inhalation: Calf Intestinal Alkaline Phosphatase, 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer, Calf Intestinal Alkaline Phosphatase Dilution Buffer

No specific data.

No specific data.

No specific data.
Section 4. First aid measures

**Skin contact**
- Calf Intestinal Alkaline Phosphatase
- 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
- No specific data.

**Ingestion**
- Calf Intestinal Alkaline Phosphatase
- 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
- No specific data.

**Protection of first-aiders**
- No action shall be taken involving any personal risk or without suitable training.

**Notes to physician**
- Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**
- No specific treatment.

**Indication of immediate medical attention and special treatment needed, if necessary**

See toxicological information (Section 11)

Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**
- Calf Intestinal Alkaline Phosphatase
- 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
- Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**
- Calf Intestinal Alkaline Phosphatase
- 10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
- None known.

**Specific hazards arising from the chemical**
- Calf Intestinal Alkaline Phosphatase
- In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products**
- Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - halogenated compounds
  - metal oxide/oxides
- No specific data.
## Section 5. Fire-fighting measures

<table>
<thead>
<tr>
<th>Special protective actions for fire-fighters</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special protective equipment for fire-fighters</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
<td></td>
</tr>
</tbody>
</table>

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel
- No action shall be taken involving any personal risk or without suitable training.
- Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

#### For emergency responders
- If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### Environmental precautions
- Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

#### Small spill
- Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

#### Large spill
- Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
Section 7. Handling and storage

Precautions for safe handling

Protective measures: Calf Intestinal Alkaline Phosphatase
Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Put on appropriate personal protective equipment (see Section 8).

Calf Intestinal Alkaline Phosphatase Dilution Buffer
Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Calf Intestinal Alkaline Phosphatase
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Calf Intestinal Alkaline Phosphatase Dilution Buffer
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Calf Intestinal Alkaline Phosphatase
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

10X Calf Intestinal Alkaline Phosphatase Reaction Buffer
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Calf Intestinal Alkaline Phosphatase Dilution Buffer
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
Section 7. Handling and storage

resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf Intestinal Alkaline Phosphatase glycerol</td>
<td>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</td>
</tr>
</tbody>
</table>

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
### Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</th>
<th>Calf Intestinal Alkaline Phosphatase Dilution Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
### Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>10X Calf Intestinal Alkaline Phosphatase reaction buffer</th>
<th>Calf Intestinal Alkaline Phosphatase dilution buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling/condensation point</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting/freezing point</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
### Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical/chemical properties comments</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

### Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>No specific test data related to reactivity available for this product or its ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical stability</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>The product is stable.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>The product is stable.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possibility of hazardous reactions</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>Under normal conditions of storage and use, hazardous reactions will not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions to avoid</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>No specific data.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>No specific data.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incompatible materials</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>No specific data.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>No specific data.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous decomposition products</th>
<th>Calf Intestinal Alkaline Phosphatase</th>
<th>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Calf Intestinal Alkaline Phosphatase Reaction Buffer</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td></td>
</tr>
<tr>
<td>Calf Intestinal Alkaline Phosphatase Dilution Buffer</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td></td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf Intestinal Alkaline Phosphatase glycerol</td>
<td>LD50 Dermal Rat</td>
<td></td>
<td>21900 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral Rat</td>
<td></td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf Intestinal Alkaline Phosphatase glycerol</td>
<td>Eyes - Mild irritant Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Sensitization
Not available.

Mutagenicity
Not available.

Carcinogenicity
Not available.

Reproductive toxicity
Not available.

Teratogenicity
Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard
Not available.

Information on the likely routes of exposure
Not available.

Potential acute health effects

Eye contact
Inhalation
Skin contact
Ingestion

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact
Inhalation
Skin contact
### Section 11. Toxicological information

**Ingestion**

Delayed and immediate effects and also chronic effects from short and long term exposure

**Short term exposure**
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Long term exposure**
- **Potential immediate effects**: 
- **Potential delayed effects**: 

**Potential chronic health effects**

Not available.

**General**
- **Carcinogenicity**: 
- **Mutagenicity**: 
- **Teratogenicity**: 
- **Developmental effects**: 
- **Fertility effects**: 

**Numerical measures of toxicity**

**Acute toxicity estimates**

Not available.

**Interactive effects**

Not available.

**Other information**

### Section 12. Ecological information

**Toxicity**

Not available.

**Persistence and degradability**

Not available.

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf Intestinal Alkaline Phosphatase glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**Mobility in soil**
Section 12. Ecological information

Mobility:

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>UN proper shipping name</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packing group</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental hazards</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Additional information</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.
Section 15. Regulatory information

U.S. Federal regulations
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- United States inventory (TSCA 8b): All components are listed or exempted.
- Clean Water Act (CWA) 307: zinc chloride
- Clean Water Act (CWA) 311: zinc chloride

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed

Clean Air Act Section 602 Class I Substances: Not listed

Clean Air Act Section 602 Class II Substances: Not listed

DEA List I Chemicals (Precursor Chemicals): Not listed

DEA List II Chemicals (Essential Chemicals): Not listed

SARA 302/304
- Composition/information on ingredients
  No products were found.

SARA 304 RQ: Not applicable.

SARA 311/312
- Classification: Not applicable.

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

State regulations
- Massachusetts: The following components are listed: GLYCERINE MIST
- New York: None of the components are listed.
- New Jersey: The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL
- Pennsylvania: The following components are listed: 1,2,3-PROPANETRIOL

International regulations
- UNECE Aarhus Protocol on POPs and Heavy Metals: Not listed.
Section 15. Regulatory information

Not listed.

Canada
WHMIS (Canada) : Calf Intestinal Alkaline Phosphatase Not controlled under WHMIS (Canada).
10X Calf Intestinal Alkaline Phosphatase Reaction Buffer Not controlled under WHMIS (Canada).
Calf Intestinal Alkaline Phosphatase Dilution Buffer Not controlled under WHMIS (Canada).

Canadian lists
Canadian NPRI : None of the components are listed.
CEPA Toxic substances : None of the components are listed.
Canada inventory : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

\[\text{Flammability} = 0 \\
\text{Health} = 2 \\
\text{Instability/Reactivity} = 0 \\
\text{Special} = 0 \]

History
Date of issue/Date of revision : 06/09/2016.
Date of previous issue : No previous validation.
Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
UN = United Nations

\[\text{Indicates information that has changed from previously issued version.}\]

Notice to reader
To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.