

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

### Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 700004  
**Product Name:** Fluorometric Developer Reagent
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
CHEMTREC Outside USA and Canada: +1 (703)527-3887

### Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**  
**Skin Corrosion/Irritation, Category 2**  
**Serious Eye Damage/Eye Irritation, Category 2A**  
**Specific Target Organ Toxicity (single exposure), Category 3**
- 2.2 Label Elements:**



**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

**GHS Precaution Phrases:**

P264: Wash {hands} thoroughly after handling.

P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

P362+364: Take off contaminated clothing and wash it before reuse.

P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.

**GHS Response Phrases:**

P302+352: IF ON SKIN: Wash with plenty of soap and water.

P332+313: If skin irritation occurs, get medical advice/attention.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+313: If eye irritation persists, get medical advice/attention.

P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**GHS Storage and Disposal Phrases:**

Please refer to Section 7 for Storage and Section 13 for Disposal information.

**2.3 Adverse Human Health** Causes serious eye irritation.  
**Effects and Symptoms:** Causes skin irritation.  
 Material may be irritating to the mucous membranes and upper respiratory tract.  
 May be harmful by inhalation, ingestion, or skin absorption.  
 May cause respiratory system irritation.  
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

| CAS # /<br>RTECS # | Hazardous Components (Chemical Name)/<br>REACH Registration No. | Concentration | EC No./<br>EC Index No. | GHS Classification  |
|--------------------|---|---------------|-------------------------|---|
| NA<br>NA           | Fluorometric Developer Reagent                                  | 100.0 %       | NA<br>NA                | Skin Corr. 2: H315<br>Eye Damage 2A: H319<br>STOT (SE) 3: H335 H336 |

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.  
**Media:** Use water spray to cool fire-exposed containers.  
**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**5.2 Flammable Properties and Hazards:** No data available.  
**Hazards:** No data available.  
**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

- 6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.  
**Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,  
**Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.  
**Precautions:**
- 6.3 Methods and Material For** Contain spill and collect, as appropriate.  
**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.  
**Up:**

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.  
**in Handling:** Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken** Keep container tightly closed.  
**in Storing:** Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

- 8.1 Exposure Parameters:**
- 8.2 Exposure Controls:**
- 8.2.1 Engineering Controls** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne  
**(Ventilation etc.):** levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment** NIOSH approved respirator, as conditions warrant.  
**(Specify Type):**
- Work/Hygienic/Maintenan** Do not take internally.  
**ce Practices:** Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.  
 Wash thoroughly after handling.  
 No data available.

### Section 9. Physical and Chemical Properties

- 9.1 Information on Basic Physical and Chemical Properties**
- Physical States:** [ ] Gas [ ] Liquid [ X ] Solid
- Appearance and Odor:** A lyophilized powder
- pH:** No data.
- Melting Point:** No data.
- Boiling Point:** No data.
- Flash Pt:** No data.
- Evaporation Rate:** No data.
- Flammability (solid, gas):** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Vapor Pressure (vs. Air or mm** No data.  
**Hg):**
- Vapor Density (vs. Air = 1):** No data.

|   |          |
|---|----------|
| <b>Specific Gravity (Water = 1):</b>        | No data. |
| <b>Solubility in Water:</b>                 | No data. |
| <b>Octanol/Water Partition Coefficient:</b> | No data. |
| <b>Autoignition Pt:</b>                     | No data. |
| <b>Decomposition Temperature:</b>           | No data. |
| <b>Viscosity:</b>                           | No data. |
| <b>9.2 Other Information</b>                |          |
| <b>Percent Volatile:</b>                    | No data. |

### Section 10. Stability and Reactivity

|  |   |
|--|---|
| <b>10.1 Reactivity:</b>                            | No data available.  |
| <b>10.2 Stability:</b>                             | Unstable [ ] Stable [ X ]   |
| <b>10.3 Stability Note(s):</b>                     | Stable if stored in accordance with information listed on the product insert. |
| <b>Polymerization:</b>                             | Will occur [ ] Will not occur [ X ]   |
| <b>10.4 Conditions To Avoid:</b>                   | No data available.  |
| <b>10.5 Incompatibility - Materials To Avoid:</b>  | strong oxidizing agents   |
| <b>10.6 Hazardous Decomposition or Byproducts:</b> | carbon dioxide<br>carbon monoxides<br>nitrogen oxides<br>sodium oxides        |

### Section 11. Toxicological Information

|   |   |
|---|---|
| <b>11.1 Information on Toxicological Effects:</b> | The toxicological effects of this product have not been thoroughly studied. |
|---|---|

| CAS # | Hazardous Components (Chemical Name) | NTP  | IARC | ACGIH | OSHA |
|-------|--------------------------------------|------|------|-------|------|
| NA    | Fluorometric Developer Reagent       | n.a. | n.a. | n.a.  | n.a. |

### Section 12. Ecological Information

|   |  |
|---|--|
| <b>12.1 Toxicity:</b>                           | Avoid release into the environment.<br>Runoff from fire control or dilution water may cause pollution. |
| <b>12.2 Persistence and Degradability:</b>      | No data available.   |
| <b>12.3 Bioaccumulative Potential:</b>          | No data available.   |
| <b>12.4 Mobility in Soil:</b>                   | No data available.   |
| <b>12.5 Results of PBT and vPvB assessment:</b> | No data available.   |
| <b>12.6 Other adverse effects:</b>              | No data available.   |



# SAFETY DATA SHEET

## Fluorometric Developer Reagent

Revision: 02/09/2017  
Supersedes Revision: 02/10/2015

### Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

#### 14.1 LAND TRANSPORT (US DOT):

**DOT Proper Shipping Name:** Not dangerous goods.

**DOT Hazard Class:**

**UN/NA Number:**

#### 14.1 LAND TRANSPORT (European ADR/RID):

**ADR/RID Shipping Name:** Not dangerous goods.

**UN Number:**

**Hazard Class:**

#### 14.3 AIR TRANSPORT (ICAO/IATA):

**ICAO/IATA Shipping Name:** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

#### EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

| CAS # | Hazardous Components (Chemical Name) | S. 302 (EHS) | S. 304 RQ | S. 313 (TRI) |
|-------|--------------------------------------|--------------|-----------|--------------|
| NA    | Fluorometric Developer Reagent       | No           | No        | No           |

| CAS # | Hazardous Components (Chemical Name) | Other US EPA or State Lists                              |
|-------|--------------------------------------|--|
| NA    | Fluorometric Developer Reagent       | CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No |

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

### Section 16. Other Information

**Revision Date:** 02/09/2017

**Additional Information About This Product:** No data available.

**This Product:**

**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

### Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 700014  
**Product Name:** HEPES Buffer (500 mM; pH 8.0)
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
 1180 E. Ellsworth Rd.  
 Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

### Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- 2.2 Label Elements:**
- GHS Signal Word:** None
- GHS Hazard Phrases:**  
 Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.
- GHS Precaution Phrases:**  
 No phrases apply.
- GHS Response Phrases:**  
 No phrases apply.
- GHS Storage and Disposal Phrases:**  
 Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.  
**Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye, skin, or respiratory system irritation.  
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

| CAS # /<br>RTECS #     | Hazardous Components (Chemical Name)/<br>REACH Registration No. | Concentration | EC No./<br>EC Index No. | GHS Classification |
|------------------------|---|---------------|-------------------------|--------------------|
| 7365-45-9<br>TL6809000 | HEPES, free acid  | 11.91 %       | 230-907-9<br>NA         | No data available. |
| 7732-18-5<br>ZC0110000 | Water   | 88.09 %       | 231-791-2<br>NA         | No data available. |

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

**Media:** Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**Media:**

**5.2 Flammable Properties and Hazards:** No data available.

No data available.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

**6.1 Protective Precautions,** Avoid breathing vapors and provide adequate ventilation.

**Protective Equipment and Emergency Procedures:** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.

**6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.

Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

**7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

**7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.

Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

|   |   |
|---|---|
| <b>8.2 Exposure Controls:</b>                         |   |
| <b>8.2.1 Engineering Controls (Ventilation etc.):</b> | Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.  |
| <b>8.2.2 Personal protection equipment:</b>           |   |
| <b>Eye Protection:</b>                                | Safety glasses  |
| <b>Protective Gloves:</b>                             | Compatible chemical-resistant gloves  |
| <b>Other Protective Clothing:</b>                     | Lab coat  |
| <b>Respiratory Equipment (Specify Type):</b>          | NIOSH approved respirator, as conditions warrant.   |
| <b>Work/Hygienic/Maintenance Practices:</b>           | Do not take internally.<br>Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.<br>Wash thoroughly after handling.<br>No data available. |

## Section 9. Physical and Chemical Properties

|  |                                |
|--|--------------------------------|
| <b>9.1 Information on Basic Physical and Chemical Properties</b> |                                |
| <b>Physical States:</b>  | [ ] Gas [ X ] Liquid [ ] Solid |
| <b>Appearance and Odor:</b>                                      | 10 ml of 500 mM HEPES, pH 8.0  |
| <b>pH:</b>   | 8.0                            |
| <b>Melting Point:</b>  | No data.                       |
| <b>Boiling Point:</b>  | No data.                       |
| <b>Flash Pt:</b>   | No data.                       |
| <b>Evaporation Rate:</b>   | No data.                       |
| <b>Flammability (solid, gas):</b>                                | No data available.             |
| <b>Explosive Limits:</b>   | LEL: No data. UEL: No data.    |
| <b>Vapor Pressure (vs. Air or mm Hg):</b>                        | No data.                       |
| <b>Vapor Density (vs. Air = 1):</b>                              | No data.                       |
| <b>Specific Gravity (Water = 1):</b>                             | No data.                       |
| <b>Solubility in Water:</b>                                      | No data.                       |
| <b>Octanol/Water Partition Coefficient:</b>                      | No data.                       |
| <b>Autoignition Pt:</b>  | No data.                       |
| <b>Decomposition Temperature:</b>                                | No data.                       |
| <b>Viscosity:</b>  | No data.                       |
| <b>9.2 Other Information</b>                                     |                                |
| <b>Percent Volatile:</b>   | No data.                       |

## Section 10. Stability and Reactivity

|   |   |
|---|---|
| <b>10.1 Reactivity:</b>                           | No data available.  |
| <b>10.2 Stability:</b>                            | Unstable [ ] Stable [ X ]   |
| <b>10.3 Stability Note(s):</b>                    | Stable if stored in accordance with information listed on the product insert. |
| <b>Polymerization:</b>                            | Will occur [ ] Will not occur [ X ]   |
| <b>10.4 Conditions To Avoid:</b>                  | No data available.  |
| <b>10.5 Incompatibility - Materials To Avoid:</b> | No data available.  |
| <b>10.6 Hazardous</b>                             | No data available.  |





# SAFETY DATA SHEET

## HEPES Buffer (500 mM; pH 8.0)

Decomposition or  
Byproducts:

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

| CAS #     | Hazardous Components (Chemical Name) | NTP  | IARC | ACGIH | OSHA |
|-----------|--------------------------------------|------|------|-------|------|
| 7365-45-9 | HEPES, free acid                     | n.a. | n.a. | n.a.  | n.a. |
| 7732-18-5 | Water                                | n.a. | n.a. | n.a.  | n.a. |

### Section 12. Ecological Information

- 12.1 Toxicity:** Avoid release into the environment.  
Runoff from fire control or dilution water may cause pollution.
- 12.2 Persistence and Degradability:** No data available.
- 12.3 Bioaccumulative Potential:** No data available.
- 12.4 Mobility in Soil:** No data available.
- 12.5 Results of PBT and vPvB assessment:** No data available.
- 12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

**14.1 LAND TRANSPORT (US DOT):**

**DOT Proper Shipping Name:** Not dangerous goods.

**DOT Hazard Class:**

**UN/NA Number:**

**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Not dangerous goods.

**UN Number:**

**Hazard Class:**

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

**EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists**

| CAS #     | Hazardous Components (Chemical Name) | S. 302 (EHS) | S. 304 RQ | S. 313 (TRI) |
|-----------|--------------------------------------|--------------|-----------|--------------|
| 7365-45-9 | HEPES, free acid                     | No           | No        | No           |
| 7732-18-5 | Water                                | No           | No        | No           |



# SAFETY DATA SHEET

## HEPES Buffer (500 mM; pH 8.0)

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013

| CAS #     | Hazardous Components (Chemical Name) | Other US EPA or State Lists   |
|-----------|--------------------------------------|---|
| 7365-45-9 | HEPES, free acid                     | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |
| 7732-18-5 | Water                                | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

### Section 16. Other Information

**Revision Date:** 02/09/2017

**Additional Information About This Product:** No data available.

**This Product:**

**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

### Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 700015  
**Product Name:** NADH Standard
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
 1180 E. Ellsworth Rd.  
 Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

### Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- 2.2 Label Elements:**
- GHS Signal Word:** None
- GHS Hazard Phrases:**  
 Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.
- GHS Precaution Phrases:**  
 No phrases apply.
- GHS Response Phrases:**  
 No phrases apply.
- GHS Storage and Disposal Phrases:**  
 Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.
- Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye, skin, or respiratory system irritation.  
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

| CAS # /<br>RTECS # | Hazardous Components (Chemical Name)/<br>REACH Registration No. | Concentration | EC No./<br>EC Index No. | GHS Classification |
|--------------------|---|---------------|-------------------------|--------------------|
| 606-68-8<br>NA     | NADH  | 100.0 %       | 210-123-3<br>NA         | No data available. |

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

**Media:** Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**Media:**

**5.2 Flammable Properties and Hazards:** No data available.

No data available.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

**6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.

**Protective Equipment and Emergency Procedures:** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.

**6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.

Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

**7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

**7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.

Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

**8.2 Exposure Controls:**

- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance Practices:** Do not take internally.  
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.  
Wash thoroughly after handling.  
No data available.

**Section 9. Physical and Chemical Properties****9.1 Information on Basic Physical and Chemical Properties**

- Physical States:** [ ] Gas [ ] Liquid [ X ] Solid
- Appearance and Odor:** A lyophilized powder
- pH:** No data.
- Melting Point:** No data.
- Boiling Point:** No data.
- Flash Pt:** No data.
- Evaporation Rate:** No data.
- Flammability (solid, gas):** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Vapor Pressure (vs. Air or mm Hg):** No data.
- Vapor Density (vs. Air = 1):** No data.
- Specific Gravity (Water = 1):** No data.
- Solubility in Water:** No data.
- Octanol/Water Partition Coefficient:** No data.
- Autoignition Pt:** No data.
- Decomposition Temperature:** No data.
- Viscosity:** No data.

**9.2 Other Information**

- Percent Volatile:** No data.

**Section 10. Stability and Reactivity**

- 10.1 Reactivity:** No data available.
- 10.2 Stability:** Unstable [ ] Stable [ X ]
- 10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.
- Polymerization:** Will occur [ ] Will not occur [ X ]
- 10.4 Conditions To Avoid:** No data available.
- 10.5 Incompatibility - Materials To Avoid:** strong oxidizing agents
- 10.6 Hazardous:** carbon dioxide  
carbon monoxide



# SAFETY DATA SHEET

## NADH Standard

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013

Decomposition or Byproducts: nitrogen oxides

### Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.

| CAS #    | Hazardous Components (Chemical Name) | NTP  | IARC | ACGIH | OSHA |
|----------|--------------------------------------|------|------|-------|------|
| 606-68-8 | NADH                                 | n.a. | n.a. | n.a.  | n.a. |

### Section 12. Ecological Information

- 12.1 Toxicity: Avoid release into the environment.  
Runoff from fire control or dilution water may cause pollution.
- 12.2 Persistence and Degradability: No data available.
- 12.3 Bioaccumulative Potential: No data available.
- 12.4 Mobility in Soil: No data available.
- 12.5 Results of PBT and vPvB assessment: No data available.
- 12.6 Other adverse effects: No data available.

### Section 13. Disposal Considerations

13.1 Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

#### 14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not dangerous goods.

DOT Hazard Class:

UN/NA Number:

#### 14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.

UN Number:

Hazard Class:

#### 14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not dangerous goods.

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

#### EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

| CAS #    | Hazardous Components (Chemical Name) | S. 302 (EHS) | S. 304 RQ | S. 313 (TRI) |
|----------|--------------------------------------|--------------|-----------|--------------|
| 606-68-8 | NADH                                 | No           | No        | No           |

| CAS #    | Hazardous Components (Chemical Name) | Other US EPA or State Lists   |
|----------|--------------------------------------|---|
| 606-68-8 | NADH                                 | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |



# SAFETY DATA SHEET

## NADH Standard

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013

**Regulatory Information** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC)  
**Statement:** No.1272/2008.

### Section 16. Other Information

**Revision Date:** 02/09/2017

**Additional Information About** No data available.

**This Product:**

**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

**Section 1. Identification of the Substance/Mixture and of the Company/Undertaking**

- 1.1 Product Code:** 700802  
**Product Name:** Acetaldehyde Assay Reagent
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
 1180 E. Ellsworth Rd.  
 Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

**Section 2. Hazards Identification**

**2.1 Classification of the Substance or Mixture:**

**Carcinogenicity, Category 2**

**2.2 Label Elements:**



**GHS Signal Word:** **Warning**

**GHS Hazard Phrases:**

H351: Suspected of causing cancer.

**GHS Precaution Phrases:**

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

**GHS Response Phrases:**

P308+313: IF exposed or concerned: Get medical attention/advice.

**GHS Storage and Disposal Phrases:**

Please refer to Section 7 for Storage and Section 13 for Disposal information.

- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.
- Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye, skin, or respiratory system irritation.  
 Suspected of causing cancer.  
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.



### Section 3. Composition/Information on Ingredients

| CAS # /<br>RTECS #     | Hazardous Components (Chemical Name)/<br>REACH Registration No. | Concentration | EC No./<br>EC Index No.   | GHS Classification   |
|------------------------|---|---------------|---------------------------|--|
| 75-07-0<br>AB1925000   | Acetaldehyde  | 0.43 %        | 200-836-8<br>605-003-00-6 | Flam. Liq. 1: H224<br>Eye Damage 2A: H319<br>STOT (SE) 3: H335<br>Carcinogen 2: H351 |
| 7732-18-5<br>ZC0110000 | Water   | 99.57 %       | 231-791-2<br>NA           | No data available.   |

### Section 4. First Aid Measures

**4.1 Description of First Aid**

**Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

**Media:** Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing** A solid water stream may be inefficient.

**Media:**

**5.2 Flammable Properties and** No data available.

**Hazards:**

No data available.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

**6.1 Protective Precautions,** Avoid breathing vapors and provide adequate ventilation.

**Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,  
**Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.

**Precautions:**

**6.3 Methods and Material For** Contain spill and collect, as appropriate.

**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.

**Up:**

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.  
Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.  
Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

| CAS #   | Chemical Name | Jurisdiction | Recommended Exposure Limits   | Notations |
|---------|---------------|--------------|---|-----------|
| 75-07-0 | Acetaldehyde  | ACGIH TLV    | CEIL: 25 ppm  |           |
|         |               | France VL    | TWA: 180 mg/m <sup>3</sup> (100 ppm)                                      |           |
|         |               | OSHA PELs    | PEL: 200 ppm  |           |
|         |               | Britain EH40 | TWA: 37 mg/m <sup>3</sup> (20 ppm)<br>STEL: 92 mg/m <sup>3</sup> (50 ppm) |           |

**8.2 Exposure Controls:**

- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance Practices:** Do not take internally.  
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.  
Wash thoroughly after handling.  
No data available.

### Section 9. Physical and Chemical Properties

**9.1 Information on Basic Physical and Chemical Properties**

- Physical States:** [ ] Gas [X] Liquid [ ] Solid
- Appearance and Odor:** 200 µl of 100 mM acetaldehyde
- pH:** No data.
- Melting Point:** No data.
- Boiling Point:** No data.
- Flash Pt:** No data.
- Evaporation Rate:** No data.
- Flammability (solid, gas):** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Vapor Pressure (vs. Air or mm Hg):** No data.
- Vapor Density (vs. Air = 1):** No data.

|   |          |
|---|----------|
| <b>Specific Gravity (Water = 1):</b>        | No data. |
| <b>Solubility in Water:</b>                 | No data. |
| <b>Octanol/Water Partition Coefficient:</b> | No data. |
| <b>Autoignition Pt:</b>                     | No data. |
| <b>Decomposition Temperature:</b>           | No data. |
| <b>Viscosity:</b>                           | No data. |
| <b>9.2 Other Information</b>                |          |
| <b>Percent Volatile:</b>                    | No data. |

**Section 10. Stability and Reactivity**

|  |   |
|--|---|
| <b>10.1 Reactivity:</b>                            | No data available.  |
| <b>10.2 Stability:</b>                             | Unstable [ ] Stable [ X ]   |
| <b>10.3 Stability Note(s):</b>                     | Stable if stored in accordance with information listed on the product insert. |
| <b>Polymerization:</b>                             | Will occur [ ] Will not occur [ X ]   |
| <b>10.4 Conditions To Avoid:</b>                   | No data available.  |
| <b>10.5 Incompatibility - Materials To Avoid:</b>  | No data available.  |
| <b>10.6 Hazardous Decomposition or Byproducts:</b> | No data available.  |

**Section 11. Toxicological Information**

|   |  |
|---|--|
| <b>11.1 Information on Toxicological Effects:</b> | The toxicological effects of this product have not been thoroughly studied.<br>Acetaldehyde - Toxicity Data: Oral LD50 (rat): 661 mg/kg; Oral LD50 (mouse): 900 mg/kg; Intraperitoneal LD50 (rat): 500 mg/kg; Subcutaneous LD50 (rat): 640 mg/kg; Intraperitoneal LD50 (mouse): 500 mg/kg; Subcutaneous LD50 (mouse): 560 mg/kg; |
| <b>Chronic Toxicological Effects:</b>             | Acetaldehyde - Investigated as a mutagen, natural product, primary irritant, reproductive effector, and tumorigen.<br>Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.<br>See actual entry in RTECS for complete information.<br>Acetaldehyde RTECS Number: AB1925000                |
| <b>Carcinogenicity:</b>                           | NTP? No      IARC Monographs? No      OSHA Regulated? No   |

| CAS #     | Hazardous Components (Chemical Name) | NTP      | IARC | ACGIH | OSHA |
|-----------|--------------------------------------|----------|------|-------|------|
| 75-07-0   | Acetaldehyde                         | Possible | 2B   | A3    | n.a. |
| 7732-18-5 | Water                                | n.a.     | n.a. | n.a.  | n.a. |

**Section 12. Ecological Information**

|   |  |
|---|--|
| <b>12.1 Toxicity:</b>                           | Avoid release into the environment.<br>Runoff from fire control or dilution water may cause pollution. |
| <b>12.2 Persistence and Degradability:</b>      | No data available.   |
| <b>12.3 Bioaccumulative Potential:</b>          | No data available.   |
| <b>12.4 Mobility in Soil:</b>                   | No data available.   |
| <b>12.5 Results of PBT and vPvB assessment:</b> | No data available.   |



# SAFETY DATA SHEET

## Acetaldehyde Assay Reagent

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013

**12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

**14.1 LAND TRANSPORT (US DOT):**

**DOT Proper Shipping Name:** Not dangerous goods.

**DOT Hazard Class:**

**UN/NA Number:**

**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Not dangerous goods.

**UN Number:**

**Hazard Class:**

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

**EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists**

| CAS #     | Hazardous Components (Chemical Name) | S. 302 (EHS) | S. 304 RQ   | S. 313 (TRI) |
|-----------|--------------------------------------|--------------|-------------|--------------|
| 75-07-0   | Acetaldehyde                         | No           | Yes 1000 LB | Yes          |
| 7732-18-5 | Water                                | No           | No          | No           |

| CAS #     | Hazardous Components (Chemical Name) | Other US EPA or State Lists   |
|-----------|--------------------------------------|---|
| 75-07-0   | Acetaldehyde                         | CAA HAP,ODC: HAP; CWA NPDES: Yes; TSCA: Yes - Inventory, 4 Test, 8A PAIR; CA PROP.65: Yes |
| 7732-18-5 | Water                                | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No                     |

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

### Section 16. Other Information

**Revision Date:** 02/09/2017

**Additional Information About This Product:** No data available.

**This Product:**

**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

### Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 700803  
**Product Name:** ALDH Enzyme Mixture
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
 1180 E. Ellsworth Rd.  
 Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

### Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- 2.2 Label Elements:**
- GHS Signal Word:** None
- GHS Hazard Phrases:**  
 Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.
- GHS Precaution Phrases:**  
 No phrases apply.
- GHS Response Phrases:**  
 No phrases apply.
- GHS Storage and Disposal Phrases:**  
 Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.  
**Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye, skin, or respiratory system irritation.  
 To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

| CAS # /<br>RTECS # | Hazardous Components (Chemical Name)/<br>REACH Registration No. | Concentration | EC No./<br>EC Index No. | GHS Classification |
|--------------------|---|---------------|-------------------------|--------------------|
| NA<br>NA           | ALDH Enzyme Mixture   | 100.0 %       | NA<br>NA                | No data available. |

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

**Media:** Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**Media:**

**5.2 Flammable Properties and Hazards:** No data available.

**Hazards:**

No data available.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

**6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.

**Protective Equipment and Emergency Procedures:** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.

**Precautions:**

**6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.

Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

**7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

**7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.

Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

**8.2 Exposure Controls:**

- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
  - Eye Protection:** Safety glasses
  - Protective Gloves:** Compatible chemical-resistant gloves
  - Other Protective Clothing:** Lab coat
  - Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
  - Work/Hygienic/Maintenance Practices:** Do not take internally.  
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.  
Wash thoroughly after handling.  
No data available.

## Section 9. Physical and Chemical Properties

**9.1 Information on Basic Physical and Chemical Properties**

- Physical States:** [ ] Gas [ ] Liquid [ X ] Solid
- Appearance and Odor:** A lyophilized powder
- pH:** No data.
- Melting Point:** No data.
- Boiling Point:** No data.
- Flash Pt:** No data.
- Evaporation Rate:** No data.
- Flammability (solid, gas):** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Vapor Pressure (vs. Air or mm Hg):** No data.
- Vapor Density (vs. Air = 1):** No data.
- Specific Gravity (Water = 1):** No data.
- Solubility in Water:** No data.
- Octanol/Water Partition Coefficient:** No data.
- Autoignition Pt:** No data.
- Decomposition Temperature:** No data.
- Viscosity:** No data.

**9.2 Other Information**

- Percent Volatile:** No data.

## Section 10. Stability and Reactivity

- 10.1 Reactivity:** No data available.
- 10.2 Stability:** Unstable [ ] Stable [ X ]
- 10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.  
**Polymerization:** Will occur [ ] Will not occur [ X ]
- 10.4 Conditions To Avoid:** No data available.
- 10.5 Incompatibility - Materials To Avoid:** No data available.
- 10.6 Hazardous:** No data available.



# SAFETY DATA SHEET

## ALDH Enzyme Mixture

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013

Decomposition or  
Byproducts:

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

**Toxicological Effects:**

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

| CAS # | Hazardous Components (Chemical Name) | NTP  | IARC | ACGIH | OSHA |
|-------|--------------------------------------|------|------|-------|------|
| NA    | ALDH Enzyme Mixture                  | n.a. | n.a. | n.a.  | n.a. |

### Section 12. Ecological Information

- 12.1 Toxicity:** Avoid release into the environment.  
Runoff from fire control or dilution water may cause pollution.
- 12.2 Persistence and Degradability:** No data available.
- 12.3 Bioaccumulative Potential:** No data available.
- 12.4 Mobility in Soil:** No data available.
- 12.5 Results of PBT and vPvB assessment:** No data available.
- 12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

**14.1 LAND TRANSPORT (US DOT):**

**DOT Proper Shipping Name:** Not dangerous goods.

**DOT Hazard Class:**

**UN/NA Number:**

**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Not dangerous goods.

**UN Number:**

**Hazard Class:**

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

**EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists**

| CAS # | Hazardous Components (Chemical Name) | S. 302 (EHS) | S. 304 RQ | S. 313 (TRI) |
|-------|--------------------------------------|--------------|-----------|--------------|
| NA    | ALDH Enzyme Mixture                  | No           | No        | No           |

| CAS # | Hazardous Components (Chemical Name) | Other US EPA or State Lists                              |
|-------|--------------------------------------|--|
| NA    | ALDH Enzyme Mixture                  | CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No |





# SAFETY DATA SHEET

## ALDH Enzyme Mixture

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013

**Regulatory Information** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC)  
**Statement:** No.1272/2008.

### Section 16. Other Information

**Revision Date:** 02/09/2017

**Additional Information About** No data available.

**This Product:**

**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

**Section 1. Identification of the Substance/Mixture and of the Company/Undertaking**

- 1.1 Product Code:** 700804  
**Product Name:** ALDH Cofactor
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
CHEMTREC Outside USA and Canada: +1 (703)527-3887

**Section 2. Hazards Identification**

- 2.1 Classification of the Substance or Mixture:**
- 2.2 Label Elements:**
- GHS Signal Word:** None
- GHS Hazard Phrases:**  
Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.
- GHS Precaution Phrases:**  
No phrases apply.
- GHS Response Phrases:**  
No phrases apply.
- GHS Storage and Disposal Phrases:**  
Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.  
**Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye, skin, and respiratory irritation.  
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**Section 3. Composition/Information on Ingredients**

| CAS # /<br>RTECS #   | Hazardous Components (Chemical Name)/<br>REACH Registration No. | Concentration | EC No./<br>EC Index No. | GHS Classification |
|----------------------|---|---------------|-------------------------|--------------------|
| 53-84-9<br>UU3450000 | NAD+  | 100.0 %       | 200-184-4<br>NA         | No data available. |

### Section 4. First Aid Measures

**4.1 Description of First Aid**

**Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

**Media:** Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**Media:**

**5.2 Flammable Properties and Hazards:** No data available.

No data available.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

**6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.

**Protective Equipment and Emergency Procedures:** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.

**6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.

Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

**7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

**7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.

Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

**8.2 Exposure Controls:**

**8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**8.2.2 Personal protection equipment:**

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.

**Work/Hygienic/Maintenance Practices:** Do not take internally.

Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.

Wash thoroughly after handling.

No data available.

**Section 9. Physical and Chemical Properties**

**9.1 Information on Basic Physical and Chemical Properties**

**Physical States:** [ ] Gas [ ] Liquid [ X ] Solid

**Appearance and Odor:** A lyophilized powder

**pH:** No data.

**Melting Point:** No data.

**Boiling Point:** No data.

**Flash Pt:** No data.

**Evaporation Rate:** No data.

**Flammability (solid, gas):** No data available.

**Explosive Limits:** LEL: No data. UEL: No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Specific Gravity (Water = 1):** No data.

**Solubility in Water:** No data.

**Solubility Notes:** Soluble in: water;

**Octanol/Water Partition Coefficient:** No data.

**Autoignition Pt:** No data.

**Decomposition Temperature:** No data.

**Viscosity:** No data.

**9.2 Other Information**

**Percent Volatile:** No data.

### Section 10. Stability and Reactivity

- 10.1 Reactivity:** No data available.
- 10.2 Stability:** Unstable [ ] Stable [ X ]
- 10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.
- Polymerization:** Will occur [ ] Will not occur [ X ]
- 10.4 Conditions To Avoid:** No data available.
- 10.5 Incompatibility - Materials To Avoid:** strong oxidizing agents
- 10.6 Hazardous Decomposition or Byproducts:** carbon dioxide  
carbon monoxide  
nitrogen oxides

### Section 11. Toxicological Information

- 11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.
- Chronic Toxicological Effects:** NAD+ - Toxicity Data: Intraperitoneal LD50 (mouse): 4333 mg/kg;  
NAD+ - Investigated as a mutagen.  
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
See actual entry in RTECS for complete information.  
NAD+ RTECS Number: UU3450000

| CAS #   | Hazardous Components (Chemical Name) | NTP  | IARC | ACGIH | OSHA |
|---------|--------------------------------------|------|------|-------|------|
| 53-84-9 | NAD+                                 | n.a. | n.a. | n.a.  | n.a. |

### Section 12. Ecological Information

- 12.1 Toxicity:** Avoid release into the environment.  
Runoff from fire control or dilution water may cause pollution.
- 12.2 Persistence and Degradability:** No data available.
- 12.3 Bioaccumulative Potential:** No data available.
- 12.4 Mobility in Soil:** No data available.
- 12.5 Results of PBT and vPvB assessment:** No data available.
- 12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

- 13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

- 14.1 LAND TRANSPORT (US DOT):**
- DOT Proper Shipping Name:** Not dangerous goods.
- DOT Hazard Class:**
- UN/NA Number:**
- 14.1 LAND TRANSPORT (European ADR/RID):**
- ADR/RID Shipping Name:** Not dangerous goods.
- UN Number:**
- Hazard Class:**



# SAFETY DATA SHEET

## ALDH Cofactor

Revision: 02/09/2017  
Supersedes Revision: 08/06/2013**14.3 AIR TRANSPORT (ICAO/IATA):****ICAO/IATA Shipping Name:** Not dangerous goods.**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

**EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists**

| CAS #   | Hazardous Components (Chemical Name) | S. 302 (EHS) | S. 304 RQ | S. 313 (TRI) |
|---------|--------------------------------------|--------------|-----------|--------------|
| 53-84-9 | NAD+                                 | No           | No        | No           |

| CAS #   | Hazardous Components (Chemical Name) | Other US EPA or State Lists   |
|---------|--------------------------------------|---|
| 53-84-9 | NAD+                                 | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

### Section 16. Other Information

**Revision Date:** 02/09/2017**Additional Information About This Product:** No data available.**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

### Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 700805  
**Product Name:** ALDH Positive Control
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
CHEMTREC Outside USA and Canada: +1 (703)527-3887

### Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- 2.2 Label Elements:**
- GHS Signal Word:** None
- GHS Hazard Phrases:**  
Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.
- GHS Precaution Phrases:**  
No phrases apply.
- GHS Response Phrases:**  
No phrases apply.
- GHS Storage and Disposal Phrases:**  
Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.
- Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye, skin, or respiratory system irritation.  
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

| CAS # /<br>RTECS #     | Hazardous Components (Chemical Name)/<br>REACH Registration No.         | Concentration | EC No./<br>EC Index No. | GHS Classification |
|------------------------|---|---------------|-------------------------|--------------------|
| 9028-88-0<br>NA        | Dehydrogenase, aldehyde (nicotinamide adenine dinucleotide (phosphate)) | 0.0 -5.0 %    | 232-846-3<br>NA         | No data available. |
| 7778-77-0<br>TC6615500 | Potassium phosphate, Monobasic  | 0.0 -5.0 %    | 231-913-4<br>NA         | No data available. |
| 50-70-4<br>LZ4290000   | Sorbitol  | 1.0 -20.0 %   | 200-061-5<br>NA         | No data available. |
| 7732-18-5<br>ZC0110000 | Water   | 70.0 -99.0 %  | 231-791-2<br>NA         | No data available. |

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**Measures:**

- In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
- In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.
- In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5. Fire Fighting Measures

**5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

**Media:** Use water spray to cool fire-exposed containers.

**Unsuitable Extinguishing Media:** A solid water stream may be inefficient.

**Media:**

**5.2 Flammable Properties and Hazards:** No data available.

**Hazards:**

No data available.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Autoignition Pt:** No data.

**5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

**6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.

**Protective Equipment and Emergency Procedures:** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

**6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.

**Precautions:**

**6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.

Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

**7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

**7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.

Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**



|              |   |   |
|--------------|---|---|
| <b>8.2</b>   | <b>Exposure Controls:</b>                       |   |
| <b>8.2.1</b> | <b>Engineering Controls (Ventilation etc.):</b> | Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.  |
| <b>8.2.2</b> | <b>Personal protection equipment:</b>           |   |
|              | <b>Eye Protection:</b>                          | Safety glasses  |
|              | <b>Protective Gloves:</b>                       | Compatible chemical-resistant gloves  |
|              | <b>Other Protective Clothing:</b>               | Lab coat  |
|              | <b>Respiratory Equipment (Specify Type):</b>    | NIOSH approved respirator, as conditions warrant.   |
|              | <b>Work/Hygienic/Maintenance Practices:</b>     | Do not take internally.<br>Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.<br>Wash thoroughly after handling.<br>No data available. |

**Section 9. Physical and Chemical Properties**

|  |                                |               |
|--|--------------------------------|---------------|
| <b>9.1 Information on Basic Physical and Chemical Properties</b> |                                |               |
| <b>Physical States:</b>  | [ ] Gas [ ] Liquid [ X ] Solid |               |
| <b>Appearance and Odor:</b>                                      | A lyophilized powder           |               |
| <b>pH:</b>   | No data.                       |               |
| <b>Melting Point:</b>  | No data.                       |               |
| <b>Boiling Point:</b>  | No data.                       |               |
| <b>Flash Pt:</b>   | No data.                       |               |
| <b>Evaporation Rate:</b>   | No data.                       |               |
| <b>Flammability (solid, gas):</b>                                | No data available.             |               |
| <b>Explosive Limits:</b>   | LEL: No data.                  | UEL: No data. |
| <b>Vapor Pressure (vs. Air or mm Hg):</b>                        | No data.                       |               |
| <b>Vapor Density (vs. Air = 1):</b>                              | No data.                       |               |
| <b>Specific Gravity (Water = 1):</b>                             | No data.                       |               |
| <b>Solubility in Water:</b>                                      | No data.                       |               |
| <b>Octanol/Water Partition Coefficient:</b>                      | No data.                       |               |
| <b>Autoignition Pt:</b>  | No data.                       |               |
| <b>Decomposition Temperature:</b>                                | No data.                       |               |
| <b>Viscosity:</b>  | No data.                       |               |
| <b>9.2 Other Information</b>                                     |                                |               |
| <b>Percent Volatile:</b>   | No data.                       |               |

**Section 10. Stability and Reactivity**

|             |  |   |
|-------------|--|---|
| <b>10.1</b> | <b>Reactivity:</b>                           | No data available.  |
| <b>10.2</b> | <b>Stability:</b>                            | Unstable [ ] Stable [ X ]   |
| <b>10.3</b> | <b>Stability Note(s):</b>                    | Stable if stored in accordance with information listed on the product insert. |
|             | <b>Polymerization:</b>                       | Will occur [ ] Will not occur [ X ]   |
| <b>10.4</b> | <b>Conditions To Avoid:</b>                  | No data available.  |
| <b>10.5</b> | <b>Incompatibility - Materials To Avoid:</b> | strong oxidizing agents   |
| <b>10.6</b> | <b>Hazardous</b>                             | carbon dioxide<br>carbon monoxide   |

**Decomposition or Byproducts:** phosphorous oxides  
potassium oxides

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.  
Potassium Phosphate, Monobasic - Toxicity Data: Oral LDLO (rat): 4640 mg/kg; Sorbitol - Toxicity Data: Oral LD50 (rat): 15900 mg/kg; Subcutaneous LD50 (rat): 29600 mg/kg; Oral LD50 (mouse): 17800 mg/kg; Intraperitoneal LD50 (mouse): 15 gm/kg; Subcutaneous LD50 (mouse): 24 gm/kg; Oral TDLO (woman): 1700 mg/kg;

**Chronic Toxicological Effects:** Sorbitol - Investigated as a drug and mutagen.  
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
See actual entry in RTECS for complete information.  
Potassium Phosphate, Monobasic RTECS Number: TC6615500  
Sorbitol RTECS Number: LZ4290000

| CAS #     | Hazardous Components (Chemical Name)                                    | NTP  | IARC | ACGIH | OSHA |
|-----------|---|------|------|-------|------|
| 9028-88-0 | Dehydrogenase, aldehyde (nicotinamide adenine dinucleotide (phosphate)) | n.a. | n.a. | n.a.  | n.a. |
| 7778-77-0 | Potassium phosphate, Monobasic  | n.a. | n.a. | n.a.  | n.a. |
| 50-70-4   | Sorbitol  | n.a. | n.a. | n.a.  | n.a. |
| 7732-18-5 | Water   | n.a. | n.a. | n.a.  | n.a. |

### Section 12. Ecological Information

**12.1 Toxicity:** Avoid release into the environment.  
Runoff from fire control or dilution water may cause pollution.

**12.2 Persistence and Degradability:** No data available.

**12.3 Bioaccumulative Potential:** No data available.

**12.4 Mobility in Soil:** No data available.

**12.5 Results of PBT and vPvB assessment:** No data available.

**12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

**14.1 LAND TRANSPORT (US DOT):**

**DOT Proper Shipping Name:** Not dangerous goods.  
**DOT Hazard Class:**  
**UN/NA Number:**

**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Not dangerous goods.  
**UN Number:**  
**Hazard Class:**

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

**Section 15. Regulatory Information**

**EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists**

| CAS #     | Hazardous Components (Chemical Name)                                    | S. 302 (EHS) | S. 304 RQ | S. 313 (TRI) |
|-----------|---|--------------|-----------|--------------|
| 9028-88-0 | Dehydrogenase, aldehyde (nicotinamide adenine dinucleotide (phosphate)) | No           | No        | No           |
| 7778-77-0 | Potassium phosphate, Monobasic  | No           | No        | No           |
| 50-70-4   | Sorbitol  | No           | No        | No           |
| 7732-18-5 | Water   | No           | No        | No           |

| CAS #     | Hazardous Components (Chemical Name)                                    | Other US EPA or State Lists   |
|-----------|---|---|
| 9028-88-0 | Dehydrogenase, aldehyde (nicotinamide adenine dinucleotide (phosphate)) | CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No              |
| 7778-77-0 | Potassium phosphate, Monobasic  | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |
| 50-70-4   | Sorbitol  | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |
| 7732-18-5 | Water   | CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No |

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

**Section 16. Other Information**

**Revision Date:** 02/09/2017

**Additional Information About This Product:** No data available.

**Company Policy or Disclaimer:** DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.