



SAFETY DATA SHEET

Sodium Phosphate Assay Buffer

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Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Revision: 02/14/2013
Supersedes Revision: 05/01/2012

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

Product Code: 700003

Product Name: Sodium Phosphate Assay Buffer

Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

Company Name: Cayman Chemical Company

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

2. Hazards Identification

GHS Hazard Phrases: Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.

GHS Precaution Phrases: No data available.

GHS Response Phrases: No data available.

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

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.

Target Organs: No data available.

Signs and Symptoms Of Exposure: To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Medical Conditions Generally Aggravated By Exposure: No data available.

3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | EC# | Risk Phrases | RTECS # |
|--|------------|---------------|-----------|-------------------|-----------|
| 1. Sodium phosphate monobasic, monohydrate | 10049-21-5 | 3.45 % | NA | R36/37/38 | WA1900000 |
| 2. Water | 7732-18-5 | 96.55 % | 231-791-2 | No phrases apply. | ZC0110000 |

4. First Aid Measures

Emergency and First Aid Procedures:

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.



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Indication of any immediate medical attention and special treatment needed: No data available.

5. Fire Fighting Measures

Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.

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

Flammable Properties and Hazards: No data available.

Flash Pt: No data.

Autoignition Pt: No data available.

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

Hazardous Combustion Products: No data available.

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.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation.
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).

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

Steps To Be Taken In Case Material Is Released Or Spilled: Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep container tightly closed.
Store in accordance with information listed on the product insert.

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS # | OSHA PEL | ACGIH TLV | Other Limits |
|--|------------|--------------|-----------|--------------|
| 1. Sodium phosphate monobasic, monohydrate | 10049-21-5 | No data. | No data. | No data. |
| 2. Water | 7732-18-5 | No data. | No data. | No data. |
| Hazardous Components (Chemical Name) | CAS # | Britain EH40 | France VL | Europe |
| 1. Sodium phosphate monobasic, monohydrate | 10049-21-5 | No data. | No data. | No data. |
| 2. Water | 7732-18-5 | No data. | No data. | No data. |

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

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

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 facility and a safety shower.
Wash thoroughly after handling.



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Environmental Exposure Controls: No data available.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties**Physical States:** ☐ Gas ☒ Liquid ☐ Solid**Appearance and Odor:** No data available.**Melting Point:** No data.**Boiling Point:** No data.**Flash Pt:** No data.**Evaporation Rate:** 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.**Autoignition Pt:** No data.**Explosive Properties:** No data available.**Oxidizing Properties:** No data available.**Other Information****Percent Volatile:** No data.

10. Stability and Reactivity

Reactivity: No data available.**Stability:** Unstable ☐ Stable ☒**Stability Note(s):** Stable if stored in accordance with information listed on the product insert.**Conditions To Avoid:** No data available.**Polymerization:** Will occur ☐ Will not occur ☒**Incompatibility - Materials To Avoid:** No data available.**Hazardous Decomposition Or Byproducts:** No data available.

11. Toxicological Information

Toxicological Information: The toxicological effects of this product have not been thoroughly studied.**Chronic Toxicological Effects:** No data available.

| Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA |
|--|------------|------|------|-------|------|
| 1. Sodium phosphate monobasic, monohydrate | 10049-21-5 | n.a. | n.a. | n.a. | n.a. |
| 2. Water | 7732-18-5 | n.a. | n.a. | n.a. | n.a. |

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

12. Ecological Information

General Ecological Information: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

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



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14. Transport Information

LAND TRANSPORT (US DOT)**DOT Proper Shipping Name** Not dangerous goods.**LAND TRANSPORT (European ADR/RID)****ADR/RID Shipping Name** Not dangerous goods.**AIR TRANSPORT (ICAO/IATA)****ICAO/IATA Shipping Name** Not dangerous goods.**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes

No data available.

European Community Risk and Safety Phrases

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III

| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--|------------|---------------|------------|---------------|---------|
| 1. Sodium phosphate monobasic, monohydrate | 10049-21-5 | No | No | No | No |
| 2. Water | 7732-18-5 | No | No | No | No |

Other US EPA or State Lists

| Hazardous Components (Chemical Name) | CAS # | CAA HAP,ODC | CWA NPDES | TSCA | CA PROP.65 |
|--|------------|-------------|-----------|-----------|------------|
| 1. Sodium phosphate monobasic, monohydrate | 10049-21-5 | No | No | No | No |
| 2. Water | 7732-18-5 | No | No | Inventory | No |

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

16. Other Information

Revision Date: 02/14/2013**Company Policy or Disclaimer**

For research use only, not for human or veterinary use.

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.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 700006

Product Name: Fluorometric Thiol Detector

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

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

Section 2. Hazards Identification

| GHS Classification | Placard | Key word | GHS hazard phrase |
|--|-------------------|----------|-------------------------------|
| Serious Eye Damage/Eye Irritation, Category 2A | Exclamation point | Warning | Causes serious eye irritation |
| Skin Corrosion/Irritation, Category 2 | Exclamation point | Warning | Causes skin irritation |
| Flammable Liquids, Category 4 | none | Warning | Combustible liquid |

GHS Hazard Phrases: H319: Causes serious eye irritation
H315: Causes skin irritation.
H227: Combustible liquid.

GHS Precaution Phrases: P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.

GHS Response Phrases: 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.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P332+313: If skin irritation occurs, get medical advice/attention.
P362: Take off contaminated clothing and wash before re-use.

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

2.3 Adverse Human Health Effects and Symptoms: Causes skin and serious eye irritation.
Has the potential to carry toxic materials or materials of unknown toxicity into the body.
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.
Readily absorbed through skin.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs: Eyes, Reproductive system, Kidneys, Respiratory system, Liver, Skin.

LD 50 / LC 50: Please refer to Section 11.

Medical Conditions Generally Aggravated By No data available.

Exposure:

Section 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | EC# | Risk Phrases |
|--------------------------------------|-------|---------------|-----|--------------|
| 1. Fluorometric Thiol Detector | NA | 100.0 % | NA | R36/38 |

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 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.
- 4.1.3 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.
- 4.1.4 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** Exposure may cause: hematuria or shortness of breath (dyspnea).
Exposure may cause: gastrointestinal irritation with nausea, vomiting, diarrhea, headache, dizziness, and drowsiness.
Eye contact may cause blurry vision, burning sensation, redness, tearing, and vasodilation.
- 4.3 Indication of any immediate medical attention and special treatment needed:** No data available.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.
- Unsuitable Extinguishing Media:** A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:** Can release vapors that form explosive mixtures at temperatures at or above the flashpoint.
Container explosion may occur under fire conditions.
Emits toxic fumes under fire conditions.
Sensitive to static discharge.
Vapors can travel to a source of ignition and flash back.
- Flash Pt:** 89.00 C Method Used: Closed Cup
- Autoignition Pt:** 215.00 C
- Explosive Limits:** LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C
- Hazardous Combustion Products:** No data available.
- 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.
Note: Combustible as diluted in dimethyl sulfoxide

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation.
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. Keep away from sources of ignition. Take precautionary measures against static discharge. |
| 7.2 Precautions To Be Taken in Storing: | Keep away from heat, sparks and flame. Keep container tightly closed. Store in accordance with information listed on the product insert. |
| Other Precautions: | Hygroscopic. |
| Hazard Label Information: | Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling. |

Section 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS # | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-------|--------------|-----------|--------------|
| 1. Fluorometric Thiol Detector | NA | No data. | No data. | No data. |
| Hazardous Components (Chemical Name) | CAS # | Britain EH40 | France VL | Europe |
| 1. Fluorometric Thiol Detector | NA | No data. | No data. | No data. |

| | |
|---|---|
| Protective Equipment Summary - Hazard Label Information: | Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood |
| 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. |
| 8.2.2.1 Eye Protection: | Safety glasses |
| 8.2.2.2 Protective Gloves: | Compatible chemical-resistant gloves |
| Other Protective Clothing: | Lab coat |
| 8.2.2.3 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. |
| 8.2.3 Environmental Exposure Controls: | No data available. |

Section 9. Physical and Chemical Properties

| | |
|--|--|
| 9.1 Information on Basic Physical and Chemical Properties | |
| Physical States: | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid |
| Appearance and Odor: | Solution |
| Melting Point: | No data. |
| Boiling Point: | No data. |
| Flash Pt: | 89.00 C Method Used: Closed Cup |
| Evaporation Rate: | No data. |
| Explosive Limits: | LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C |
| Vapor Pressure (vs. Air or mm Hg): | 0.37 MM_HG at 20.0 C |
| Vapor Density (vs. Air = 1): | No data. |
| Specific Gravity (Water = 1): | No data. |
| Solubility in Water: | No data. |
| Autoignition Pt: | 215.00 C |

Explosive Properties: No data available.

Oxidizing Properties: No data available.

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.

10.4 Conditions To Avoid: heat, flames and sparks

10.3 Polymerization: Will occur [] Will not occur [X]

10.5 Incompatibility - Materials To Avoid: acid chlorides
phosphorus halides
strong acids
alkali metals
strong oxidizing agents
strong reducing agents

10.6 Hazardous Decomposition Or Byproducts: carbon monoxide
carbon dioxide
sulfur oxides

Section 11. Toxicological Information

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

DMSO - Toxicity Data: Oral LD50 (rat): 14,500 mg/kg; Skin LD50 (rat): 40,000 mg/kg; Oral LD50 (mouse): 7,920 mg/kg; Skin LD50 (mouse): 50,000 mg/kg; Skin TDLO (woman): 1,800 mg/kg; Inhalation LC50 (rat): >1,600 mg/m3 (4h);

DMSO - Irritation Data: Eyes (rabbit): 100 mg mild; Skin (rabbit): 500 mg (24h) mild;

Chronic Toxicological Effects:

DMSO - Investigated as a mutagen, reproductive effector, and tumorigen.

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.

See actual entry in RTECS for complete information.

DMSO RTECS Number: PV6210000

| Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA |
|--------------------------------------|-------|------|------|-------|------|
| 1. Fluorometric Thiol Detector | NA | n.a. | n.a. | n.a. | n.a. |

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

Section 12. Ecological Information

12.1 Toxicity: Avoid release into the environment.

Runoff from fire control or dilution water may cause pollution.

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.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.



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Fluorometric Thiol Detector

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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

European Community Hazard Symbol codes Xi: Irritant**European Community Risk and Safety Phrases**

R36/38 - Irritating to eyes and skin.

S24/25 - Avoid contact with skin and eyes.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

US EPA SARA Title III

| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-------|---------------|------------|---------------|---------|
| 1. Fluorometric Thiol Detector | NA | No | No | No | No |

Other US EPA or State Lists

| Hazardous Components (Chemical Name) | CAS # | CAA HAP,ODC | CWA NPDES | TSCA | CA PROP.65 |
|--------------------------------------|-------|-------------|-----------|------|------------|
| 1. Fluorometric Thiol Detector | NA | No | No | No | No |

Regulatory Information Statement:

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date:

05/15/2013

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.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 700641

Product Name: Lipase Substrate

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

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

Section 2. Hazards Identification

| GHS Classification | Placard | Key word | GHS hazard phrase |
|--|-------------------|----------|---|
| Flammable Liquids, Category 2 | Flame | Danger | Highly flammable liquid and vapor |
| Skin Corrosion/Irritation, Category 2 | Exclamation point | Warning | Causes skin irritation |
| Serious Eye Damage/Eye Irritation, Category 2A | Exclamation point | Warning | Causes serious eye irritation |
| Toxic To Reproduction, Category 2 | Health hazard | Warning | Suspected of damaging fertility or the unborn child |
| Target Organ Systemic Toxicity (single exposure), Category 3 | Exclamation point | Warning | May cause respiratory irritation, or may cause drowsiness and dizziness |
| Target Organ Systemic Toxicity (repeated exposure), Category 1 | Health hazard | Danger | Causes damage to {<target organs>} through prolonged or repeated exposure |

GHS Hazard Phrases:

H225: Highly flammable liquid and vapor.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H361: Suspected of damaging fertility or the unborn child.
H372: Causes damage to organs {liver} through prolonged or repeated oral exposure.

GHS Precaution Phrases:

P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.
P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
P264: Wash hands thoroughly after handling.
P362+364: Take off contaminated clothing and wash it before reuse.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.

GHS Response Phrases:

P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
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.

P308+313: IF exposed or concerned: Get medical attention/advice.
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.
P314: Get medical attention/advice if you feel unwell.

GHS Storage and Disposal Phrases:

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

2.3 Adverse Human Health Effects and Symptoms:

Causes damage to organs {liver} through prolonged or repeated oral exposure.
Causes serious eye irritation.
Causes skin or respiratory system irritation.
Material is irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
Suspected of damaging fertility or the unborn child.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs:

Central nervous system, Blood, Eyes, Reproductive system, Heart, Respiratory system, Liver, Skin.

LD 50 / LC 50:

Please refer to Section 11.

Medical Conditions Generally Aggravated By Exposure:

No data available.

Section 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | EC# | Risk Phrases | RTECS # |
|--------------------------------------|--------------|---------------|-----------|---------------------------|-----------|
| 1. Arachidonoyl-1-thio-Glycerol | 1309664-54-7 | 0.02 % | NA | No phrases apply. | NA |
| 2. Ethyl alcohol | 64-17-5 | 99.98 % | 200-578-6 | R11-36/37/38-48-62 -63 | KQ6300000 |

Section 4. First Aid Measures

4.1 Description of First Aid Measures:
4.1.1 In Case of Inhalation:

Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

4.1.2 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.

4.1.3 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.

4.1.4 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.

4.2 Important Symptoms and Effects, Both Acute and Delayed:

Irritating to eyes, skin, nose; may cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.

4.3 Indication of any immediate medical attention and special treatment needed:

No data available.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media:

Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

Use water spray to cool fire-exposed containers.

Unsuitable Extinguishing Media:

A solid water stream may be inefficient.

5.2 Flammable Properties and Hazards:

Can release vapors that form explosive mixtures at temperatures at or above the flashpoint.

Container explosion may occur under fire conditions.

Emits toxic fumes under fire conditions.

Sensitive to static discharge.

Vapors can travel to a source of ignition and flash back.

Flash Pt: 14.00 C Method Used: Closed Cup

Autoignition Pt: 363.00 C

Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C

Hazardous Combustion Products: No data available.

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.
Note: Flammable as diluted in ethanol.

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation.
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.
Keep away from sources of ignition.
Take precautionary measures against static discharge.

7.2 Precautions To Be Taken in Storing: Keep away from heat, sparks, and flame.
Keep container tightly closed.
Store in accordance with information listed on the product insert.

Other Precautions: Hygroscopic.

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS # | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|--------------|--|---|--------------|
| 1. Arachidonoyl-1-thio-Glycerol | 1309664-54-7 | No data. | No data. | No data. |
| 2. Ethyl alcohol | 64-17-5 | 1000 ppm | 1000 ppm | No data. |
| Hazardous Components (Chemical Name) | CAS # | Britain EH40 | France VL | Europe |
| 1. Arachidonoyl-1-thio-Glycerol | 1309664-54-7 | No data. | No data. | No data. |
| 2. Ethyl alcohol | 64-17-5 | TWA: 1920 mg/m3 (1000 ppm) STEL: () | TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm) | No data. |

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

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.

8.2.2.1 Eye Protection: Safety glasses

8.2.2.2 Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

8.2.2.3 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.

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: ☐ Gas ☒ Liquid ☐ Solid

Appearance and Odor: Solution

Melting Point: No data.

Boiling Point: No data.

Flash Pt: 14.00 C Method Used: Closed Cup

Evaporation Rate: No data.

Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C

Vapor Pressure (vs. Air or mm Hg): 43 MM_HG at 20.0 C

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

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: 363.00 C

Explosive Properties: No data available.

Oxidizing Properties: No data available.

9.2 Other Information

Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable ☐ Stable ☒

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.

10.4 Conditions To Avoid: heat, flames and sparks

10.3 Polymerization: Will occur ☐ Will not occur ☒

10.5 Incompatibility - Materials To Avoid: alkali metals
ammonia
peroxides
strong oxidizing agents

10.6 Hazardous Decomposition Or Byproducts: carbon dioxide
carbon monoxide

Section 11. Toxicological Information

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

Chronic Toxicological Effects:

Ethanol - Toxicity Data: Oral TDLO (man): 1.14 ml/kg; Oral TDLO (man): 650 mg/kg; Oral LD50 (rat): 7,060 mg/kg; Oral LD50 (mouse): 3,450 mg/kg; Oral LD50 (mouse): 10.5 ml/kg; Oral LD50 (rabbit): 6,300 mg/kg; Inhalation LC50 (rat): 20,000 ppm (10h); Inhalation TCLO (human): 1,800 ppm (30m); Inhalation TCLO (human): 2,500 mg/m3 (20m); Inhalation LC50 (rat): 5,900 mg/m3 (6h); Inhalation LCLO (mouse): 29,300 ppm (7h);

Ethanol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 20 mg (24h) moderate;

Ethanol - Investigated as a mutagen, reproductive effector, and tumorigen.

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.

See actual entry in RTECS for complete information.

Ethanol RTECS Number: KQ6300000

| Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA |
|--------------------------------------|--------------|------|------|-------|------|
| 1. Arachidonoyl-1-thio-Glycerol | 1309664-54-7 | n.a. | n.a. | n.a. | n.a. |
| 2. Ethyl alcohol | 64-17-5 | n.a. | 1 | A4 | n.a. |

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

Section 12. Ecological Information

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

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 Ethyl Alcohol Solution
DOT Hazard Class: 3
DOT Hazard Label: FLAMMABLE LIQUID
UN/NA Number: 1170
Packing Group: II

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Ethyl Alcohol Solution
UN Number: 1170
Hazard Class: 3 - FLAMMABLE LIQUID
Packing Group: II

14.3 AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Ethyl Alcohol Solution
UN Number: 1170
Hazard Class: 3 - FLAMMABLE LIQUID
Packing Group: II
IATA Classification: 3

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

Section 15. Regulatory Information

European Community Hazard Symbol codes F: Highly Flammable; Xn: Harmful; Reproductive Hazard: 3

European Community Risk and Safety Phrases

R11 - Highly flammable.
R36/37/38 - Irritating to eyes, respiratory system and skin.
R48 - Danger of serious damage to health by prolonged exposure.
R62 - Risk of impaired fertility.
R63 - Possible risk of harm to the unborn child.
S7 - Keep container tightly closed.
S16 - Keep away from sources of ignition.
S24/25 - Avoid contact with skin and eyes.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33 - Take precautionary measures against static discharges.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
S53 - Avoid exposure - obtain special instructions before use.

US EPA SARA Title III



SAFETY DATA SHEET

Lipase Substrate

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| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|--------------|---------------|------------|---------------|---------|
| 1. Arachidonoyl-1-thio-Glycerol | 1309664-54-7 | No | No | No | No |
| 2. Ethyl alcohol | 64-17-5 | No | No | No | No |

Other US EPA or State Lists

| Hazardous Components (Chemical Name) | CAS # | CAA HAP,ODC | CWA NPDES | TSCA | CA PROP.65 |
|--------------------------------------|--------------|-------------|-----------|-----------|------------|
| 1. Arachidonoyl-1-thio-Glycerol | 1309664-54-7 | No | No | No | No |
| 2. Ethyl alcohol | 64-17-5 | No | No | Inventory | No |

Regulatory Information Statement:

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 05/15/2013

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.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 700642

Product Name: Lipase 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

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

Section 2. Hazards Identification

| GHS Classification | Placard | Key word | GHS hazard phrase |
|--|-------------------|----------|---|
| Acute Toxicity: Oral, Category 4 | Exclamation point | Warning | Harmful if swallowed |
| Skin Corrosion/Irritation, Category 2 | Exclamation point | Warning | Causes skin irritation |
| Serious Eye Damage/Eye Irritation, Category 2A | Exclamation point | Warning | Causes serious eye irritation |
| Target Organ Systemic Toxicity (single exposure), Category 3 | Exclamation point | Warning | May cause respiratory irritation, or may cause drowsiness and dizziness |
| Aquatic Toxicity (Chronic), Category 2 | Pollution | | Toxic to aquatic life with long lasting effects |

GHS Hazard Phrases:

H302: Harmful if swallowed.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H411: Toxic to aquatic life with long lasting effects.

GHS Precaution Phrases:

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
P362+364: Take off contaminated clothing and wash it before reuse.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P273: Avoid release to the environment - if this is not the intended use.

GHS Response Phrases:

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330: Rinse mouth.
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.
P391: Collect spillage.

| | |
|---|---|
| GHS Storage and Disposal Phrases: | Please refer to Section 7 for Storage and Section 13 for Disposal information. |
| 2.3 Adverse Human Health Effects and Symptoms: | <p>Causes serious eye irritation.</p> <p>Causes skin irritation.</p> <p>Harmful if swallowed.</p> <p>Material may be irritating to the mucous membranes and upper respiratory tract.</p> <p>May be harmful by inhalation or skin absorption.</p> <p>May cause respiratory system irritation.</p> <p>Toxic to aquatic life with long lasting effects.</p> <p>To the best of our knowledge, the toxicological properties have not been thoroughly investigated.</p> |
| Target Organs: | No data available. |
| Medical Conditions Generally Aggravated By Exposure: | No data available. |

Section 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | EC# | Risk Phrases | RTECS # |
|--------------------------------------|-----------|---------------|-----------|-------------------|-----------|
| 1. Lipase, lipoprotein | 9004-02-8 | 0.0 -1.0 % | 232-669-1 | No phrases apply. | NA |
| 2. Trizma base | 77-86-1 | 0.0 -1.0 % | 201-064-4 | R36/37/38 | TY2900000 |
| 3. Ammonium sulfate | 7783-20-2 | 10.0 -40.0 % | 231-984-1 | R36/37/38-51/53 | BS4500000 |
| 4. Water | 7732-18-5 | 50.0 -90.0 % | 231-791-2 | No phrases apply. | ZC0110000 |

Section 4. First Aid Measures

| | |
|--|---|
| 4.1 Description of First Aid Measures: | |
| 4.1.1 In Case of Inhalation: | Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention. |
| 4.1.2 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. |
| 4.1.3 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. |
| 4.1.4 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. |
| 4.2 Important Symptoms and Effects, Both Acute and Delayed: | No data available. |
| 4.3 Indication of any immediate medical attention and special treatment needed: | No data available. |

Section 5. Fire Fighting Measures

| | |
|--|---|
| 5.1 Suitable Extinguishing Media: | Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. |
| | 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. |
| Flash Pt: | No data. |
| Autoignition Pt: | No data available. |
| Explosive Limits: | LEL: No data. UEL: No data. |
| Hazardous Combustion Products: | No data available. |
| 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, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation.
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.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS # | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-----------|--------------|-----------|--------------|
| 1. Lipase, lipoprotein | 9004-02-8 | No data. | No data. | No data. |
| 2. Trizma base | 77-86-1 | No data. | No data. | No data. |
| 3. Ammonium sulfate | 7783-20-2 | No data. | No data. | No data. |
| 4. Water | 7732-18-5 | No data. | No data. | No data. |
| Hazardous Components (Chemical Name) | CAS # | Britain EH40 | France VL | Europe |
| 1. Lipase, lipoprotein | 9004-02-8 | No data. | No data. | No data. |
| 2. Trizma base | 77-86-1 | No data. | No data. | No data. |
| 3. Ammonium sulfate | 7783-20-2 | No data. | No data. | No data. |
| 4. Water | 7732-18-5 | No data. | No data. | No data. |

- Protective Equipment Summary - Hazard Label Information:** Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
- 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.
- 8.2.2.1 Eye Protection:** Safety glasses
- 8.2.2.2 Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- 8.2.2.3 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.
- 8.2.3 Environmental Exposure Controls:** 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:** Solution
- Melting Point:** No data.



SAFETY DATA SHEET

Lipase Positive Control

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Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: 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.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

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.

10.4 Conditions To Avoid: No data available.

10.3 Polymerization: Will occur [] Will not occur [X]

10.5 Incompatibility - Materials To Avoid: strong oxidizers

10.6 Hazardous Decomposition Or Byproducts: ammonia
nitrogen oxides
sulfur

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.
Ammonium sulfate - Toxicity Data: Oral TDLO (man): 1,500 mg/kg; Oral LD50 (rat): 2,840 mg/kg; Oral LD50 (mouse): 640 mg/kg;

Chronic Toxicological Effects: Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.
See actual entry in RTECS for complete information.
Ammonium Sulfate RTECS Number: BS4500000.

| Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA |
|--------------------------------------|-----------|------|------|-------|------|
| 1. Lipase, lipoprotein | 9004-02-8 | n.a. | n.a. | n.a. | n.a. |
| 2. Trizma base | 77-86-1 | n.a. | n.a. | n.a. | n.a. |
| 3. Ammonium sulfate | 7783-20-2 | n.a. | n.a. | n.a. | n.a. |
| 4. Water | 7732-18-5 | n.a. | n.a. | n.a. | n.a. |

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

Section 12. Ecological Information

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

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.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

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

European Community Hazard Symbol codes Xi: Irritant; N: Dangerous for the environment

European Community Risk and Safety Phrases

- R36/37/38 - Irritating to eyes, respiratory system and skin.
- R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- S24/25 - Avoid contact with skin and eyes.
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
- S61 - Avoid release to the environment. Refer to special instructions / safety data sheets.

US EPA SARA Title III

| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|------------|---------------|---------|
| 1. Lipase, lipoprotein | 9004-02-8 | No | No | No | No |
| 2. Trizma base | 77-86-1 | No | No | Yes-Cat. N106 | No |
| 3. Ammonium sulfate | 7783-20-2 | No | No | No | No |
| 4. Water | 7732-18-5 | No | No | No | No |

Other US EPA or State Lists

| Hazardous Components (Chemical Name) | CAS # | CAA HAP,ODC | CWA NPDES | TSCA | CA PROP.65 |
|--------------------------------------|-----------|-------------|-----------|-----------|------------|
| 1. Lipase, lipoprotein | 9004-02-8 | No | No | Inventory | No |
| 2. Trizma base | 77-86-1 | HAP | No | Inventory | No |
| 3. Ammonium sulfate | 7783-20-2 | No | No | Inventory | No |
| 4. Water | 7732-18-5 | No | No | Inventory | No |

Regulatory Information Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 05/13/2013

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.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

according to Regulation (EC) No. 1907/2006

Revision: 05/15/2013

Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 700643

Product Name: Thioglycerol 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

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

Section 2. Hazards Identification

GHS Hazard Phrases: Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.

GHS Precaution Phrases: No data available.

GHS Response Phrases: No data available.

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

2.3 Adverse Human Health Effects and Symptoms: Material may be irritating to the mucous membranes and upper respiratory tract.
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.

Target Organs: No data available.

Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS # | Concentration | EC# | Risk Phrases | RTECS # |
|--------------------------------------|-----------|---------------|-----------|--------------------|-----------|
| 1. 3-Mercapto-1,2-propanediol | 96-27-5 | 0.11 % | 202-495-0 | R22-43-24-36/37/38 | TY8140000 |
| 2. Water | 7732-18-5 | 99.89 % | 231-791-2 | No phrases apply. | ZC0110000 |

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

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

4.1.2 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.

4.1.3 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.

4.1.4 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.

4.2 Important Symptoms and Effects, Both Acute and Delayed: No data available.

4.3 Indication of any immediate medical attention and special treatment needed: No data available.

Section 5. Fire Fighting Measures

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

Flash Pt: No data.

Autoignition Pt: No data available.

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

Hazardous Combustion Products: No data available.

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, Protective Equipment and Emergency Procedures: Avoid breathing vapors and provide adequate ventilation.
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.

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS # | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-----------|--------------|-----------|--------------|
| 1. 3-Mercapto-1,2-propanediol | 96-27-5 | No data. | No data. | No data. |
| 2. Water | 7732-18-5 | No data. | No data. | No data. |
| Hazardous Components (Chemical Name) | CAS # | Britain EH40 | France VL | Europe |
| 1. 3-Mercapto-1,2-propanediol | 96-27-5 | No data. | No data. | No data. |
| 2. Water | 7732-18-5 | No data. | No data. | No data. |

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

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.

8.2.2.1 Eye Protection: Safety glasses

8.2.2.2 Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

8.2.2.3 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.

8.2.3 Environmental Exposure Controls: No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: ☐ Gas ☒ Liquid ☐ Solid

Appearance and Odor: No data available.

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: 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.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

9.2 Other Information

Percent Volatile: No data.

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable ☐ Stable ☒

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.

10.4 Conditions To Avoid: No data available.

10.3 Polymerization: Will occur ☐ Will not occur ☒

10.5 Incompatibility - Materials To Avoid: No data available.

10.6 Hazardous Decomposition Or Byproducts: No data available.

Section 11. Toxicological Information

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

Chronic Toxicological Effects: No data available.

| Hazardous Components (Chemical Name) | CAS # | NTP | IARC | ACGIH | OSHA |
|--------------------------------------|-----------|------|------|-------|------|
| 1. 3-Mercapto-1,2-propanediol | 96-27-5 | n.a. | n.a. | n.a. | n.a. |
| 2. Water | 7732-18-5 | n.a. | n.a. | n.a. | n.a. |

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

Section 12. Ecological Information

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



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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.

14.1 LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

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

European Community Hazard Symbol codes

No data available.

European Community Risk and Safety Phrases

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III

| Hazardous Components (Chemical Name) | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|------------|---------------|---------|
| 1. 3-Mercapto-1,2-propanediol | 96-27-5 | No | No | No | No |
| 2. Water | 7732-18-5 | No | No | No | No |

Other US EPA or State Lists

| Hazardous Components (Chemical Name) | CAS # | CAA HAP,ODC | CWA NPDES | TSCA | CA PROP.65 |
|--------------------------------------|-----------|-------------|-----------|-----------|------------|
| 1. 3-Mercapto-1,2-propanediol | 96-27-5 | No | No | Inventory | No |
| 2. Water | 7732-18-5 | No | No | Inventory | No |

Regulatory Information Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

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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.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required