

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:** 705010  
**Product Name:** LPO Assay FTS Reagent 1  
**Synonyms:** FTS Reagent 1;
- 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:**  
**2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
Skin Corrosion/Irritation, Category 2  
**2.1.2 Classification according to Directive 1999/45/EC:**  
Xi: Irritant  
Risk Phrases: R38  
For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**  
**2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H315: Causes skin 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.

**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.

**GHS Storage and Disposal Phrases:**

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

### 2.2.2 Labeling according to Directive 1999/45/EC:



**Xi**

### 2.3 Adverse Human Health Causes skin irritation.

**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 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 # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
7782-63-0 NO8510000	Ferrous sulfate	0.126 %	NA 026-003-01-4	Xn; R22-36/38 Acute Tox.(O) 4: H302 Skin Corr. 2: H315 Eye Damage 2A: H319
7647-01-0 MW4025000	Hydrochloric acid	1.673 %	231-595-7 017-002-00-2	T; C; R23-35 Skin Corr. 1B: H314 TOST (SE) 3: H335 H336
7732-18-5 ZC0110000	Water	98.201 %	231-791-2 NA	No phrases apply. No data available.

## Section 4. First Aid Measures

### 4.1 Description of First Aid No data available.

#### 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 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.

**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, 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.

### Section 8. Exposure Controls/Personal Protection

#### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
7782-63-0	Ferrous sulfate	No data.	No data.	No data.
7647-01-0	Hydrochloric acid	TWA: 2 mg/m3 (1 ppm) STEL: 8 mg/m3 (5 ppm)	STEL: 7.6 mg/m3 (5 ppm)	TWA: 8 mg/m3 STEL: 15 mg/m3
7732-18-5	Water	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
7782-63-0	Ferrous sulfate	No data.	No data.	No data.
7647-01-0	Hydrochloric acid	CEIL: 5 ppm	CEIL: 2 ppm)	No data.
7732-18-5	Water	No data.	No data.	No data.

#### 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 facility and a safety shower.

Wash thoroughly after handling.

### 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:** No data.  
**Evaporation Rate:** No data.  
**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.  
**Autoignition Pt:** 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 ☒  
**10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.  
**Polymerization:** Will occur ☐ Will not occur ☒  
**10.4 Conditions To Avoid:** No data available.  
**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.  
**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.

**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)
7782-63-0	Ferrous sulfate	No	Yes 1000 LB	No
7647-01-0	Hydrochloric acid	Yes 500 LB	Yes 5000 LB	Yes
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
7782-63-0	Ferrous sulfate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
7647-01-0	Hydrochloric acid	CAA HAP,ODC: HAP; CWA NPDES: No; TSCA: Inventory, 4 Test; CA PROP.65: No
7732-18-5	Water	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No

**European Community Hazard Symbol codes:**


**Xi**

**European Community Risk and Safety Phrases:**

R38	Irritating to skin.
S22	Do not breathe dust.
S24/25	Avoid contact with skin and eyes.
S28	After contact with skin, wash immediately with plenty of soap-suds.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.

**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:** 06/13/2014**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:** 705012  
**Product Name:** LPO Assay FTS Reagent 2  
**Synonyms:** FTS Reagent 2;
- 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:**  
**2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
Flammable Liquids, Category 2  
Acute Toxicity: Oral, Category 3  
Acute Toxicity: Skin, Category 3  
Acute Toxicity: Inhalation, Category 3  
Target Organ Systemic Toxicity (single exposure), Category 1
- 2.1.2 Classification according to Directive 1999/45/EC:**  
F: Highly Flammable  
T: Toxic  
Risk Phrases: R11, R39/23/24/25  
For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**  
**2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** Danger

**GHS Hazard Phrases:**

H225: Highly flammable liquid and vapor.  
H301: Toxic if swallowed.  
H311: Toxic in contact with skin.  
H331: Toxic if inhaled.  
H370: Causes damage to organs {eyes}.

**GHS Precaution Phrases:**

P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.  
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.  
P264: Wash {hands} thoroughly after handling.  
P361+364: Take off immediately all contaminated clothing and wash it before reuse.  
P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.  
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.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P363: Wash contaminated clothing before reuse.

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P330: Rinse mouth.

P361: Remove/Take off immediately all contaminated clothing.

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

P307+311: IF exposed: Call a POISON CENTER or doctor/physician.

**GHS Storage and Disposal Phrases:**

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

**2.2.2 Labeling according to Directive 1999/45/EC:**

**F**

**T**
**2.3 Adverse Human Health** Cannot be made nonpoisonous.

**Effects and Symptoms:** Causes damage to organs {eyes}.

Harmful vapors.

Material may be irritating to the mucous membranes and upper respiratory tract.

May be fatal or cause blindness if swallowed.

May cause eye, skin, or respiratory system irritation.

Toxic if swallowed, inhaled, or absorbed through the skin.

Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
1762-95-4 XK7875000	Ammonium thiocyanate	3.0 %	217-175-6 NA	Xn; R20/21/22-32 Acute Tox.(O) 4: H302 Acute Tox.(D) 4: H312 Acute Tox.(I) 4: H332 Aquatic (A) 3: H402
67-56-1 PC1400000	Methanol	97.0 %	200-659-6 603-001-00-X	F; T; R11-23/24/25-39/23/24/25 Flam. Liq. 2: H225 Acute Tox.(O) 3: H301 Acute Tox.(D) 3: H311 Acute Tox.(I) 3: H331 TOST (SE) 1: H370



### Section 4. First Aid Measures

- 4.1 Description of First Aid** No data available.
- 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** Overexposure may cause: confusion, dermatitis, headache, drowsiness, dizziness, gastrointestinal disturbance, optic nerve damage (blindness), nausea, unconsciousness, vomiting, visual disturbance, weakness.  
May cause convulsions.  
Once methanol is absorbed into the body, it is very slowly eliminated.

### 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:** 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:** 11.00 C Method Used: Closed Cup
- Explosive Limits:** LEL: 6.0% at 25.0 C UEL: 36.0% at 25.0 C
- Autoignition Pt:** 385.00 C
- 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 methanol.

### 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.

### Section 8. Exposure Controls/Personal Protection

#### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
1762-95-4	Ammonium thiocyanate	No data.	No data.	No data.
67-56-1	Methanol	TWA: 266 mg/m3 (200 ppm) STEL: 333 mg/m3 (250 ppm)	TWA: 260 mg/m3 (200 ppm) STEL: 1300 mg/m3 (1000 ppm)	TWA: 260 mg/m3
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
1762-95-4	Ammonium thiocyanate	No data.	No data.	No data.
67-56-1	Methanol	PEL: 200 ppm	TLV: 200 ppm STEL: 250 ppm	No data.

#### 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 facility and a safety shower.  
Wash thoroughly after handling.

### 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:** 11.00 C Method Used: Closed Cup  
**Evaporation Rate:** No data.  
**Explosive Limits:** LEL: 6.0% at 25.0 C UEL: 36.0% at 25.0 C  
**Vapor Pressure (vs. Air or mm Hg):** 96 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:** 385.00 C

#### 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.  
**Polymerization:** Will occur ☐ Will not occur ☒  
**10.4 Conditions To Avoid:** heat, flames and sparks  
**10.5 Incompatibility - Materials To Avoid:** acids  
 alkali metals  
 reducing agents  
 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.  
 Methanol - Toxicity Data: Oral LD50 (rat): 5,600 mg/kg; Oral LD50 (rabbit): 14,200 mg/kg; Inhalation LC50 (rat): 64,000 ppm (4h); Inhalation LC50 (mouse): 61,100 ppm (134 m); Skin LD50 (rabbit): 15,800 mg/kg; Oral LDLO (human): 143 mg/kg; Methanol - Irritation Data: Skin (rabbit): 20 mg (24h) moderate; Eyes (rabbit): 40 mg moderate; Eyes (rabbit): 100 mg (24h) moderate;  
**Chronic Toxicological Effects:** Methanol - Investigated as a mutagen and reproductive effector.  
 Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.  
 Methanol RTECS Number: PC1400000  
**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:** Methanol

**DOT Hazard Class:** 3 (6.1)

FLAMMABLE LIQUID, POISON

**UN/NA Number:** 1230

**Packing Group:** II



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

**ADR/RID Shipping Name:** Methanol

**UN Number:** 1230

**Packing Group:** II

**Hazard Class:** 3 (6.1) - FLAMMABLE  
LIQUID, POISON

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

**ICAO/IATA Shipping Name:** Methanol

**UN Number:** 1230

**Packing Group:** II

**Hazard Class:** 3 (6.1) - FLAMMABLE  
LIQUID, POISON

**IATA Classification:** 3,6.1

**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)
1762-95-4	Ammonium thiocyanate	No	Yes 5000 LB	No
67-56-1	Methanol	No	Yes 5000 LB	Yes

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
1762-95-4	Ammonium thiocyanate	CAA HAP, ODC: HAP; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
67-56-1	Methanol	CAA HAP, ODC: HAP; CWA NPDES: No; TSCA: Inventory; CA PROP.65: Yes

### European Community Hazard Symbol codes:



**F**



**T**

### European Community Risk and Safety Phrases:

R11	Highly flammable.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
S7	Keep container tightly closed.
S16	Keep away from sources of ignition.
S24/25	Avoid contact with skin and eyes.
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.)

<b>Regulatory Information Statement:</b>	This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.
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## Section 16. Other Information

**Revision Date:** 06/13/2014

**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:** 705014  
**Product Name:** Lipid Hydroperoxide Standard  
**Synonyms:** LPO 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:**  
**2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
 Flammable Liquids, Category 2  
 Serious Eye Damage/Eye Irritation, Category 2A  
**2.1.2 Classification according to Directive 1999/45/EC:**  
 F: Highly Flammable  
 Risk Phrases: R11, R36  
 For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**  
**2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** Danger

**GHS Hazard Phrases:**

H225: Highly flammable liquid and vapor.

H319: Causes serious eye irritation.

**GHS Precaution Phrases:**

P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.

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

P264: Wash {hands} thoroughly after handling.

**GHS Response Phrases:**

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

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.

**GHS Storage and Disposal Phrases:**

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

### 2.2.2 Labeling according to Directive 1999/45/EC:



**F**

### 2.3 Adverse Human Health Causes serious eye irritation.

**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 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 # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
33964-75-9 NA	13(S)-HpODE	0.002 %	NA NA	No phrases apply. No data available.
64-17-5 KQ6300000	Ethyl alcohol	99.998 %	200-578-6 603-002-00-5	F; R11-36 Flam. Liq. 2: H225 Eye Damage 2A: H319

## Section 4. First Aid Measures

### 4.1 Description of First Aid No data available.

#### 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.

**4.2 Important Symptoms and Effects, Both Acute and Delayed:** May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.

## 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:** 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



<b>Explosive Limits:</b>	LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
<b>Autoignition Pt:</b>	363.00 C
<b>5.3 Fire Fighting Instructions:</b>	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

<b>6.1 Protective Precautions, Protective Equipment and Emergency Procedures:</b>	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).
<b>6.2 Environmental Precautions:</b>	Take steps to avoid release into the environment, if safe to do so.
<b>6.3 Methods and Material For Containment and Cleaning Up:</b>	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

<b>7.1 Precautions To Be Taken in Handling:</b>	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.
<b>7.2 Precautions To Be Taken in Storing:</b>	Keep away from heat, sparks, and flame. Keep container tightly closed. Store in accordance with information listed on the product insert.
<b>Other Precautions:</b>	Hygroscopic.

### Section 8. Exposure Controls/Personal Protection

#### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
33964-75-9	13(S)-HpODE	No data.	No data.	No data.
64-17-5	Ethyl alcohol	TWA: 1920 mg/m3 (1000 ppm) STEL: ()	TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm)	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
33964-75-9	13(S)-HpODE	No data.	No data.	No data.
64-17-5	Ethyl alcohol	PEL: 1000 ppm	TLV: 1000 ppm	No data.

#### 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/Mainten** Do not take internally.



**ance Practices:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
Wash thoroughly after handling.

### 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

#### 9.2 Other Information

**Percent Volatile:** No data.  
**Molecular Formula & Weight:** C18H32O4 312.4

### 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.  
**Polymerization:** Will occur ☐ Will not occur ☒  
**10.4 Conditions To Avoid:** heat, flames and sparks  
**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

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied. 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;
<b>Chronic Toxicological Effects:</b>	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
<b>Carcinogenicity:</b>	NTP? No      IARC Monographs? No      OSHA Regulated? No

### Section 12. Ecological Information

<b>12.1 Toxicity:</b>	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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### Section 13. Disposal Considerations

<b>13.1 Waste Disposal Method:</b>	Dispose in accordance with local, state, and federal regulations.
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### Section 14. Transport Information

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

<b>DOT Proper Shipping Name:</b>	Ethyl alcohol solution		
<b>DOT Hazard Class:</b>	3	FLAMMABLE LIQUID	
<b>UN/NA Number:</b>	1170	<b>Packing Group:</b>	II



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

<b>ADR/RID Shipping Name:</b>	Ethyl alcohol solution		
<b>UN Number:</b>	1170	<b>Packing Group:</b>	II
<b>Hazard Class:</b>	3 - FLAMMABLE LIQUID		

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

<b>ICAO/IATA Shipping Name:</b>	Ethyl alcohol solution		
<b>UN Number:</b>	1170	<b>Packing Group:</b>	II
<b>Hazard Class:</b>	3 - FLAMMABLE LIQUID	<b>IATA Classification:</b>	3

<b>Additional Transport Information:</b>	Transport in accordance with local, state, and federal regulations.
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### 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)
33964-75-9	13(S)-HpODE	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
33964-75-9	13(S)-HpODE	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
64-17-5	Ethyl alcohol	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No

#### European Community Hazard Symbol codes:



**F**

#### European Community Risk and Safety Phrases:

R11	Highly flammable.
R36	Irritating to eyes.
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.

**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:** 06/13/2014

**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:** 705016  
**Product Name:** LPO Assay Extract R  
**Synonyms:** Extract R;
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
- 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:**
- 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
 Skin Corrosion/Irritation, Category 1B
- 2.1.2 Classification according to Directive 1999/45/EC:**  
**C: Corrosive**  
**Risk Phrases: R34**  
**For full text of R- phrases: see SECTION 15.**
- 2.2 Label Elements:**
- 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** Danger

**GHS Hazard Phrases:**

H314: Causes severe skin burns and eye damage.

**GHS Precaution Phrases:**

P260: Do not breathe {dust/fume/gas/mist/vapours/spray}.

P264: Wash {hands} thoroughly after handling.

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

**GHS Response Phrases:**

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

P363: Wash contaminated clothing before reuse.

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

P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

P310: Immediately call a {POISON CENTER/doctor/...}.

**GHS Storage and Disposal Phrases:**

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

### 2.2.2 Labeling according to Directive 1999/45/EC:



**C**

- 2.3 Adverse Human Health** Causes severe skin burns and eye damage.
- 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 respiratory system irritation.  
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

## Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
NA NA	Extract R	100.0 %	NA NA	C; R34 Skin Corr. 1B: H314

## Section 4. First Aid Measures

- 4.1 Description of First Aid** No data available.
- 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:**
- Eye contact may result in permanent damage and complete vision loss.  
Ingestion may cause damage to the mouth, throat, and esophagus.  
Inhalation may cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.  
Inhalation may result in inflammation, edema, and chemical pneumonitis.  
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, skin, and digestive tract.

## Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
- Unsuitable Extinguishing Media:** A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:** No data available.
- Flash Pt:** No data.
- Explosive Limits:** LEL: No data. UEL: No data.
- Autoignition Pt:** No data.

<b>5.3 Fire Fighting Instructions:</b>	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.
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### Section 6. Accidental Release Measures

<b>6.1 Protective Precautions, Protective Equipment and Emergency Procedures:</b>	Avoid raising and breathing dust, 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).
<b>6.2 Environmental Precautions:</b>	Take steps to avoid release into the environment, if safe to do so.
<b>6.3 Methods and Material For Containment and Cleaning Up:</b>	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

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

### Section 8. Exposure Controls/Personal Protection

#### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
NA	Extract R	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
NA	Extract R	No data.	No data.	No data.

#### 8.2 Exposure Controls:

<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. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

### Section 9. Physical and Chemical Properties

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

**Physical States:** ☐ Gas ☐ Liquid ☒ Solid  
**Appearance and Odor:** A crystalline solid  
**Melting Point:** No data.  
**Boiling Point:** No data.  
**Flash Pt:** No data.  
**Evaporation Rate:** No data.  
**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.  
**Autoignition Pt:** 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 ☒  
**10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.  
**Polymerization:** Will occur ☐ Will not occur ☒  
**10.4 Conditions To Avoid:** No data available.  
**10.5 Incompatibility - Materials To Avoid:** oxidizing agents  
**10.6 Hazardous Decomposition Or Byproducts:** phosphorus oxides

### 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

### 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:** Corrosive solid, acidic, inorganic, n.o.s. (Extract R)

**DOT Hazard Class:** 8 CORROSIVE

**UN/NA Number:** 3260

**Packing Group:** III



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

**ADR/RID Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s. (Extract R)

**UN Number:** 3260

**Packing Group:** III

**Hazard Class:** 8 - CORROSIVE

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

**ICAO/IATA Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s. (Extract R)

**UN Number:** 3260

**Packing Group:** III

**Hazard Class:** 8 - CORROSIVE

**IATA Classification:** 8

**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	Extract R	No	No	No

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

#### European Community Hazard Symbol codes:



**C**

#### European Community Risk and Safety Phrases:

R34	Causes burns.
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.)

**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:** 06/13/2014**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:** 705018  
**Product Name:** LPO Assay Triphenylphosphine  
**Synonyms:** Triphenylphosphine;
- 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:**  
**2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**  
 Acute Toxicity: Oral, Category 4  
 Skin Sensitization, Category 1  
 Aquatic Toxicity (Chronic), Category 4  
**2.1.2 Classification according to Directive 1999/45/EC:**  
 Xn: Harmful  
 N: Dangerous for the environment  
 Risk Phrases: R22, R43, R53  
 For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**  
**2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H302: Harmful if swallowed.  
 H317: May cause an allergic skin reaction.  
 H413: May cause long lasting harmful effects to aquatic life.

**GHS Precaution Phrases:**

P264: Wash {hands} thoroughly after handling.  
 P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.  
 P272: Contaminated work clothing should not be allowed out of the workplace.  
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.  
 P362+364: Take off contaminated clothing and wash it before reuse.  
 P273: Avoid release to the environment.

**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.

P333+313: If skin irritation or rash occurs, seek medical advice/attention.

### GHS Storage and Disposal Phrases:

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

#### 2.2.2 Labeling according to Directive 1999/45/EC:



Xn



N

#### 2.3 Adverse Human Health Harmful if swallowed.

**Effects and Symptoms:** Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation or skin absorption.

May cause an allergic skin reaction.

May cause eye, skin, or respiratory system irritation.

May cause long lasting harmful effects to aquatic life.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
603-35-0 SZ3500000	Triphenylphosphine	100.0 %	210-036-0 NA	Xn;N; R22-43-53 Acute Tox.(O) 4: H302 Skin Sens. 1: H317 Aquatic (C) 4: H413

### Section 4. First Aid Measures

#### 4.1 Description of First Aid Measures:

##### No data available.

**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.

#### 4.2 Important Symptoms and Effects, Both Acute and Delayed:

Exposure may cause sensitization.

### 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.  
**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, Protective Equipment and Emergency Procedures:** Avoid raising and breathing dust, 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.

### Section 8. Exposure Controls/Personal Protection

#### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
603-35-0	Triphenylphosphine	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
603-35-0	Triphenylphosphine	No data.	No data.	No data.

#### 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 facility and

a safety shower.  
Wash thoroughly after handling.

## Section 9. Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

**Physical States:** ☐ Gas ☐ Liquid ☒ Solid  
**Appearance and Odor:** A crystalline solid  
**Melting Point:** No data.  
**Boiling Point:** No data.  
**Flash Pt:** No data.  
**Evaporation Rate:** No data.  
**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.  
**Autoignition Pt:** 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 ☒  
**10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.  
**Polymerization:** Will occur ☐ Will not occur ☒  
**10.4 Conditions To Avoid:** No data available.  
**10.5 Incompatibility - Materials To Avoid:** oxidizing agents  
**10.6 Hazardous Decomposition Or Byproducts:** carbon dioxide  
carbon monoxide  
phosphorus oxides

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.  
Triphenylphosphine - Toxicity Data: Oral LD50 (rat): 700 mg/kg; Inhalation LC50 (rat): 1135 ppm (4h); Oral LD50 (mouse): 1 g/kg; Subcutaneous LD50 (mouse): 3 g/kg; Skin LD50 (rabbit): >5 g/kg;  
Triphenylphosphine - Irritation Data: Eyes (rabbit): 500 mg (24h) mild;

**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.  
Triphenylphosphine RTECS Number: SZ3500000

**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.  
**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)
603-35-0	Triphenylphosphine	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
603-35-0	Triphenylphosphine	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No

### European Community Hazard Symbol codes:



**Xn**



**N**

### European Community Risk and Safety Phrases:

R22	Harmful if swallowed.
R43	May cause sensitization by skin contact.
R53	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.

**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:** 06/13/2014

**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.