

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:** 10008196
Product Name: Stearic acid ethyl ester
Synonyms: octadecanoic acid, ethyl ester; Ethyl Octadecanoate; Ethyl Stearate; NSC 8919; Octadecoanoic acid ethyl ester;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2A
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
H315: Causes skin irritation.
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.
P362+364: Take off contaminated clothing and wash it before reuse.**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.

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



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory system irritation.

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

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
111-61-5 WI3600000	Ethyl stearate	10.0 %	203-887-4 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2A: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	90.0 %	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
- Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
- Autoignition Pt:** 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
111-61-5	Ethyl stearate	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
111-61-5	Ethyl stearate	No data.	TLV: 10 mg/m3	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/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.

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.

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: C20H40O2 312.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia

peroxides

strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide

carbon monoxide

Byproducts:**Section 11. Toxicological Information**

11.1 Information on Toxicological Effects:	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/m ³ (20m); Inhalation LC50 (rat): 5,900 mg/m ³ (6h); Inhalation LCLO (mouse): 29,300 ppm (7h); Ethanol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 20 mg (24h) moderate; Stearic Acid ethyl ester - Toxicity Data: Oral LD50 (rat): >5 gm/kg; Skin LD50 (rabbit): >5 gm/kg;
Chronic Toxicological Effects:	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 Stearic Acid ethyl ester RTECS Number: WI3600000
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.
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Section 14. Transport Information**14.1 LAND TRANSPORT (US DOT):**

DOT Proper Shipping Name: Ethyl Alcohol Solution
DOT Hazard Class: 3 **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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
111-61-5	Ethyl stearate	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
111-61-5	Ethyl stearate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:



Xi F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014
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:** 10008197
Product Name: Myristic Acid ethyl ester
Synonyms: tetradecanoic acid, ethyl ester; NSC 8917; Ethyl Tetradecanoate; Ethyl Myristate;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Target Organ Systemic Toxicity (single exposure), Category 3
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory 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.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {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.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xi



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory 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
124-06-1 NA	Myristic Acid ethyl ester	50.0 %	204-675-4 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
Autoignition Pt: 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
124-06-1	Myristic Acid ethyl ester	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
124-06-1	Myristic Acid ethyl ester	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/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.

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.

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: C16H32O2 256.4

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia

peroxides

strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide

carbon monoxide

Byproducts:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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;

Chronic Toxicological Effects: 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

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 **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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
124-06-1	Myristic Acid ethyl ester	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
124-06-1	Myristic Acid ethyl ester	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:



Xi



F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014

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:** 10008198
Product Name: Linoleic Acid ethyl ester
Synonyms: 9Z,12Z-octadecadienoic acid, ethyl ester; Ethyl Linoleate; Telfairic Acid ethyl ester;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Target Organ Systemic Toxicity (single exposure), Category 3
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory 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.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {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.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xi



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory 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
544-35-4 NA	Ethyl linoleate, pure	50.0 %	208-868-4 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
Autoignition Pt: 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
544-35-4	Ethyl linoleate, pure	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
544-35-4	Ethyl linoleate, pure	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/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.

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.

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: C₂₀H₃₆O₂ 308.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia

peroxides

strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide

carbon monoxide

Byproducts:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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;

Chronic Toxicological Effects: 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

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 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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
544-35-4	Ethyl linoleate, pure	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
544-35-4	Ethyl linoleate, pure	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:



Xi F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014

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:** 10008199
Product Name: Linolenic Acid ethyl ester
Synonyms: 9Z,12Z,15Z-octadecatrienoic acid, ethyl ester; Ethyl .alpha.-Linolenate; LAEE;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Target Organ Systemic Toxicity (single exposure), Category 3
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory 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.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {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.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xi



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory 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
1191-41-9 RG2185000	Ethyl linolenate	50.0 %	214-734-6 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
Autoignition Pt: 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
1191-41-9	Ethyl linolenate	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
1191-41-9	Ethyl linolenate	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/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.

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.

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: C₂₀H₃₄O₂ 306.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia
peroxides
strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide
carbon monoxide

Byproducts:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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;
Linolenic Acid ethyl ester - Toxicity Data: Oral LD50 (mouse): 111250 mg/kg;

Chronic Toxicological Effects: 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
Linolenic Acid ethyl ester RTECS Number: RG2185000

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 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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
1191-41-9	Ethyl linolenate	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
1191-41-9	Ethyl linolenate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:



Xi F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014
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:** 10008200
Product Name: Arachidonic Acid ethyl ester
Synonyms: 5Z,8Z,11Z,14Z-eicosatetraenoic acid, ethyl ester; Ethyl Arachidonate;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 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.
 P362+364: Take off contaminated clothing and wash it before reuse.

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.

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



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory system irritation.

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

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
1808-26-0 JX3855000	Arachidonic Acid ethyl ester	10.0 %	NA NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	90.0 %	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
- Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
- Autoignition Pt:** 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
1808-26-0	Arachidonic Acid ethyl ester	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
1808-26-0	Arachidonic Acid ethyl ester	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/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.

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.

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: C22H36O2 332.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia

peroxides

strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide

carbon monoxide

Byproducts:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied. Arachidonic Acid ethyl ester - Toxicity Data: Oral LD50 (rat): >20 gm/kg; Oral LD50 (mouse): > 20 gm/kg; 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;
Chronic Toxicological Effects:	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. Arachidonic Acid ethyl ester RTECS Number: JX3855000 Ethanol RTECS Number: KQ6300000
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.
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Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name:	Ethyl Alcohol Solution		
DOT Hazard Class:	3	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	Packing Group:	II
Hazard Class:	3 - FLAMMABLE LIQUID		

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
 When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
1808-26-0	Arachidonic Acid ethyl ester	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
1808-26-0	Arachidonic Acid ethyl ester	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:



Xi F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014

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:** 10008201
Product Name: Oleic Acid ethyl ester
Synonyms: 9Z-octadecenoic acid, ethyl ester; Ethyl Oleate;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Target Organ Systemic Toxicity (single exposure), Category 3
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory 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.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {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.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xi



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory 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
111-62-6 RG3715000	Ethyl oleate	50.0 %	203-889-5 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
Autoignition Pt: 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
111-62-6	Ethyl oleate	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
111-62-6	Ethyl oleate	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/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.

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.

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: C₂₀H₃₈O₂ 310.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia

peroxides

strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide

carbon monoxide

Byproducts:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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;
 Oleic Acid ethyl ester - Toxicity Data: Oral LD50 (rat): >5 gm/kg; Skin LD50 (rabbit): >5 gm/kg;

Chronic Toxicological Effects: 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
 Oleic Acid ethyl ester RTECS Number: RG3715000

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 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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
 When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
111-62-6	Ethyl oleate	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
111-62-6	Ethyl oleate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:



Xi F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014

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:** 10008202
Product Name: Palmitic Acid ethyl ester
Synonyms: hexadecanoic acid, ethyl ester; Ethyl hexadecanoate; Ethyl palmitate;
- 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
 Aquatic Toxicity (Chronic), Category 4
2.1.2 Classification according to Directive 1999/45/EC:
 N: Dangerous for the environment
 F: Highly Flammable
 Risk Phrases: R11, R36, 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: **Danger**

GHS Hazard Phrases:

H225: Highly flammable liquid and vapor.
 H319: Causes serious eye irritation.
 H413: May cause long lasting harmful effects to aquatic life.

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.
 P273: Avoid release to the environment.

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:

N

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.

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
628-97-7 NA	Palmitic Acid ethyl ester	50.0 %	211-064-6 NA	N; R53 Aquatic (C) 4: H413
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
- Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
- Autoignition Pt:** 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
628-97-7	Palmitic Acid ethyl ester	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
628-97-7	Palmitic Acid ethyl ester	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/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.

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.

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: C18H36O2 284.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals

ammonia
peroxides
strong oxidizing agents

10.6 Hazardous Decomposition Or carbon dioxide
carbon monoxide

Byproducts:

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: 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;

Chronic Toxicological Effects: 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

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 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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
628-97-7	Palmitic Acid ethyl ester	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
628-97-7	Palmitic Acid ethyl ester	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:



N F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36 Irritating to eyes.
- R53 May cause long-term adverse effects in the aquatic environment.
- 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.
- S61 Avoid release to the environment. Refer to special instructions / safety data sheets.

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: 02/19/2014

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:** 10008203
Product Name: Lauric Acid ethyl ester
Synonyms: dodecanoic acid, ethyl ester; Ehtyl laurate; Ethyl dodecanoate; NSC 83467; NSC 8912;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Target Organ Systemic Toxicity (single exposure), Category 3
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory 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.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {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.

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

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

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xi



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory 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
106-33-2 NA	Ethyl laurate	50.0 %	203-386-0 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
Autoignition Pt: 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
106-33-2	Ethyl laurate	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
106-33-2	Ethyl laurate	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/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.

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.

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: C₁₄H₂₈O₂ 228.4

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals
ammonia
bases
peroxides
oxidizing agents
reducing 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.
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;

Chronic Toxicological Effects: 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

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 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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
106-33-2	Ethyl laurate	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
106-33-2	Ethyl laurate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; 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:


Xi



F

European Community Risk and Safety Phrases:

R11	Highly flammable.
R36/37/38	Irritating to eyes, respiratory system and skin.
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: 02/19/2014

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:** 10008204
Product Name: Palmitoleic Acid ethyl ester
Synonyms: 9Z-hexadecenoic acid, ethyl ester; Ethyl Palmitoleate;
- 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
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Target Organ Systemic Toxicity (single exposure), Category 3
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xi: Irritant
F: Highly Flammable
Risk Phrases: R11, R36/37/38
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.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H335: May cause respiratory 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.
 P362+364: Take off contaminated clothing and wash it before reuse.
 P261: Avoid breathing {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.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xi



F

2.3 Adverse Human Health Causes skin irritation.

Effects and Symptoms: Causes serious eye irritation.

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

May be harmful by inhalation, ingestion, or skin absorption.

May cause respiratory system irritation.

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

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
56219-10-4 NA	Palmitoleic Acid ethyl ester	50.0 %	260-065-8 NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2: H319 TOST (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol	50.0 %	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
Explosive Limits: LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
Autoignition Pt: 363.00 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 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
56219-10-4	Palmitoleic Acid ethyl ester	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
56219-10-4	Palmitoleic Acid ethyl ester	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/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.

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.

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: C18H34O2 282.5

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable [] Stable [X]

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

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

10.4 Conditions To Avoid: heat, flames and sparks

10.5 Incompatibility - Materials To Avoid: alkali metals
ammonia
bases
peroxides
oxidizing agents
reducing 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.
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;

Chronic Toxicological Effects: 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

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 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 **Packing Group:** II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

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

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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)
56219-10-4	Palmitoleic Acid ethyl ester	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
56219-10-4	Palmitoleic Acid ethyl ester	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:



Xi F

European Community Risk and Safety Phrases:

- R11 Highly flammable.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- 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: 02/19/2014

Additional Information About This Product: No data available.

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