

Safety Data Sheet acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

1 Identification

- **Product identifier**
- **Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4**
- **Other means of identification**
- **Article number:** 46816
- **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal opening times: +1 (734) 971-3335
US/CANADA: 800-424-9300
Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute toxicity - inhalation 3

H331 Toxic if inhaled.



GHS08 Health hazard

Carcinogenicity 2

H351 Suspected of causing cancer.

Reproductive toxicity 2

H361 Suspected of damaging fertility or the unborn child.

Specific target organ toxicity (repeated exposure) 1 H372 Causes damage to the central nervous system, the kidneys, the liver and the respiratory system through prolonged or repeated exposure.



GHS07

Acute toxicity - oral 4

H302 Harmful if swallowed.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 1)

Skin irritation 2

H315 Causes skin irritation.

Eye irritation 2A

H319 Causes serious eye irritation.

Specific target organ toxicity (single exposure) 3

H336 May cause drowsiness or dizziness.

Label elements

GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS06



GHS07



GHS08

Signal word Danger

Hazard-determining components of labeling:

Chloroform

Hazard statements

H302 Harmful if swallowed.

H331 Toxic if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer.

H361 Suspected of damaging fertility or the unborn child.

H336 May cause drowsiness or dizziness.

H372 Causes damage to the central nervous system, the kidneys, the liver and the respiratory system through prolonged or repeated exposure.

Precautionary statements

P201 Obtain special instructions before use.

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

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

P330 Rinse mouth.

P302+P352 If on skin: Wash with plenty of water.

P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P321 Specific treatment (see on this label).

P314 Get medical advice/attention if you feel unwell.

P362+P364 Take off contaminated clothing and wash it before reuse.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

US

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 2)

- Information pertaining to particular dangers for man and environment:
- Classification system:
- NFPA ratings (scale 0 - 4)



Health = 2
Fire = 0
Reactivity = 0

- HMIS-ratings (scale 0 - 4)



Health = 2
Fire = 0
Reactivity = 0

- Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable
- vPvB: Not applicable
- Classification according to (d)(1)(ii) of § 1910.1200

The SDS issuer does not object to the classifications provided by importers or manufacturers of precursor products.

- Hazards not otherwise classified

There are no adverse physical or health effects known that are not covered by the hazard classes of the Hazard Communications Standard.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

CAS: 67-66-3 RTECS: FS9100000	Chloroform	98.619%
----------------------------------	------------	---------

Other ingredients

CAS: 64-17-5 RTECS: KQ6300000	ethanol	0.531%
CAS: 112-39-0 RTECS: ML9720000	Palmitic Acid methyl ester	0.034%
CAS: 112-61-8 RTECS: WI4460000	Stearic Acid methyl ester	0.034%
CAS: 112-62-9 RTECS: RK0895000	Oleic Acid methyl ester	0.034%
CAS: 112-63-0	Linoleic Acid methyl ester	0.034%
CAS: 301-00-8	α-Linolenic Acid methyl ester	0.034%
CAS: 929-77-1	Docosanoic Acid methyl ester	0.034%
CAS: 1120-25-8	(9Z)-hexadecenoic acid, methyl ester	0.034%
CAS: 1120-28-1	Arachidic Acid methyl ester	0.034%
CAS: 1731-92-6	Heptadecanoic Acid methyl ester	0.034%
CAS: 1937-62-8	Elaidic Acid methyl ester	0.034%
CAS: 1937-63-9	cis-Vaccenic Acid methyl ester	0.034%
CAS: 2390-09-2	methyl cis-icos-11-enoate	0.034%

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 3)

CAS: 2433-97-8	Tricosanoic Acid methyl ester	0.034%
CAS: 2442-49-1	methyl tetracosanoate	0.034%
CAS: 2463-02-7	11,14-Eicosadienoic acid, methyl ester	0.034%
CAS: 2566-89-4	Arachidonic Acid methyl ester	0.034%
CAS: 2566-90-7	Docosaehaenoic Acid methyl ester	0.034%
CAS: 2733-88-2	Nervonic Acid methyl ester	0.034%
CAS: 2734-47-6	Methyl Eicosapentaenoate	0.034%
CAS: 6064-90-0	Heneicosanoic Acid methyl ester	0.034%
CAS: 7132-64-1	Pentadecanoic Acid methyl ester	0.034%
CAS: 13487-42-8	cis-7,10,13,16-Docosatetraenoic acid methyl ester	0.034%
CAS: 16326-32-2	γ-Linolenic Acid methyl ester	0.034%
CAS: 21061-10-9	Dihomo-γ-Linolenic Acid methyl ester	0.034%
CAS: 108698-02-8	Docosapentaenoic Acid methyl ester	0.034%

4 First-aid measures

· Description of first aid measures

· General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

· After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· After swallowing: Immediately call a doctor.

· Most important symptoms and effects, both acute and delayed

No further relevant information available.

· Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

· Extinguishing media

· Suitable extinguishing agents:

Use fire fighting measures that suit the environment.

A solid water stream may be inefficient.

· Special hazards arising from the substance or mixture

67-56-1 During heating or in case of fire poisonous gases are produced.

· Advice for firefighters

· Protective equipment: Mouth respiratory protective device.

US

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 4)

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

67-66-3	Chloroform	2.0 ppm
64-17-5	ethanol	1800 ppm

- **PAC-2:**

67-66-3	Chloroform	64 ppm
64-17-5	ethanol	3300 ppm

- **PAC-3:**

67-66-3	Chloroform	3200 ppm
64-17-5	ethanol	15000 ppm

- **Reference to other sections**

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** Store in accordance with information listed on the product insert.
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

67-66-3 Chloroform

PEL	Ceiling limit value: 240 mg/m ³ , 50 ppm
REL	Short-term value: 9.78* mg/m ³ , 2* ppm *60-min; See Pocket Guide App. A

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 5)

TLV	Long-term value: 49 mg/m ³ , 10 ppm
A3	

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Appropriate engineering controls** No further data; see section 7.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Physical state** Liquid
- **Color:** According to product specification
- **Odor:** Characteristic
- **Structural Formula** C H Cl₃
- **Molecular Weight** 119.38 g/mol
- **Storage Buffer**
- **Odor threshold:** Not determined

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 6)

· Formulation	
· Melting point/Melting range:	-63.5 °C (-82.3 °F)
· Boiling point/Boiling range:	Undetermined
· Flammability:	Not applicable
· Explosion limits:	
· Lower:	Not determined
· Upper:	Not determined
· Flash point:	Not applicable
· Auto igniting:	982 °C (1,799.6 °F)
· Decomposition temperature:	Not determined
· pH-value:	Not determined
· Viscosity:	
· Kinematic:	Not determined
· SOLUBILITY	
· Dynamic:	Not determined
· Solubility in / Miscibility with	
· Water at 20 °C (68 °F):	8 g/l
· Partition coefficient (n-octanol/water):	Not determined
· Vapor pressure at 20 °C (68 °F):	211 hPa (158.3 mm Hg)
· Vapor pressure:	
· Density at 20 °C (68 °F):	1.48 g/cm ³ (12.3506 lbs/gal)
· Relative density	Not determined
· Vapor density	Not determined
· Particle characteristics	Not applicable
· Other information	
· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Solvent content:	
· Organic solvents:	0.5 %
· VOC content:	0.53 %
	5.3 g/l / 0.04 lb/gal
· Change in condition	
· Evaporation rate	Not determined

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

US

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 7)

11 Toxicological information

- Information on toxicological effects

- Acute toxicity:

- LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

Oral	LD50	921 mg/kg (rat)
Inhalative	LC50/4 h	3.14 mg/l (rat)

67-66-3 Chloroform

Oral	LD50	908 mg/kg (rat) OECD Test Guideline 401
Inhalative	LC50/4 h	3.1 mg/l (rat) Expert judgment

- Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.

- on the eye: Irritating effect.

- Sensitization: No sensitizing effects known.

- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Harmful

Irritant

- Interactive effects No interactive effects between components are known.

- Carcinogenic categories

- IARC (International Agency for Research on Cancer)

67-66-3	Chloroform	2B
64-17-5	ethanol	1

- NTP (National Toxicology Program)

67-66-3	Chloroform	R
---------	------------	---

- OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

- Alternative sources for toxicological information

No non-standard sources for toxicological information where used.

12 Ecological information

- Toxicity

- Aquatic toxicity: No further relevant information available.

- Persistence and degradability No further relevant information available.

- Bioaccumulative potential No further relevant information available.

- Mobility in soil No further relevant information available.

- Results of PBT and vPvB assessment

- PBT: Not applicable

- vPvB: Not applicable

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 8)

- **Other adverse effects**
- **Additional ecological information:**
- **General notes:**
 Water hazard class 3 (Self-assessment): extremely hazardous for water
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Danger to drinking water if even extremely small quantities leak into the ground.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| · UN-Number | UN2810 |
| · DOT, IMDG, IATA | |
| · UN proper shipping name | Toxic, liquids, organic, n.o.s. (Chloroform) |
| · DOT | TOXIC LIQUID, ORGANIC, N.O.S. (CHLOROFORM) |
| · IMDG | Toxic liquid, organic, n.o.s. (CHLOROFORM) |
| · IATA | |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 6.1 Toxic substances |
| · Label | 6.1 |
| · IMDG, IATA | |
|  | |
| · Class | 6.1 Toxic substances |
| · Label | 6.1 |
| · Packing group | III |
| · DOT, IMDG, IATA | |
| · Environmental hazards: | Not applicable |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable |

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 9)

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**

On passenger aircraft/rail: 60 L
On cargo aircraft only: 220 L

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **IATA**

· **Remarks:**

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.

· **Special precautions for user**

Warning: Toxic substances

· **Hazard identification number (Kemler code):** 60

· **EMS Number:**

F-A,S-A

· **Segregation groups**

(SGG10) Liquid halogenated hydrocarbons

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **UN "Model Regulation":**

UN 2810 TOXIC LIQUID, ORGANIC, N.O.S.
(CHLOROFORM), 6.1, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):**

67-66-3	Chloroform
---------	------------

· **Section 313 (Specific toxic chemical listings):**

67-66-3	Chloroform
---------	------------

· **TSCA (Toxic Substances Control Act):**

67-66-3	Chloroform	ACTIVE
64-17-5	ethanol	ACTIVE
112-39-0	Palmitic Acid methyl ester	ACTIVE
112-61-8	Stearic Acid methyl ester	ACTIVE
112-62-9	Oleic Acid methyl ester	ACTIVE
112-63-0	Linoleic Acid methyl ester	ACTIVE
301-00-8	α -Linolenic Acid methyl ester	ACTIVE
929-77-1	Docosanoic Acid methyl ester	ACTIVE
1120-28-1	Arachidic Acid methyl ester	ACTIVE
1731-92-6	Heptadecanoic Acid methyl ester	ACTIVE
1937-62-8	Elaidic Acid methyl ester	INACTIVE

(Contd. on page 11)

US

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 10)

7132-64-1	Pentadecanoic Acid methyl ester	ACTIVE
· Hazardous Air Pollutants		
67-66-3	Chloroform	
· Chemicals known to cause cancer:		
67-66-3	Chloroform	
· Chemicals known to cause reproductive toxicity for females:		
None of the ingredients is listed.		
· Chemicals known to cause reproductive toxicity for males:		
None of the ingredients is listed.		
· Chemicals known to cause developmental toxicity:		
67-66-3	Chloroform	
64-17-5	ethanol	
· Carcinogenic categories		
· EPA (Environmental Protection Agency)		
67-66-3	Chloroform	B2, L, NL
· TLV (Threshold Limit Value)		
67-66-3	Chloroform	A3
64-17-5	ethanol	A3
· NIOSH-Ca (National Institute for Occupational Safety and Health)		
67-66-3	Chloroform	
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.		

16 Other information

- **Department issuing SDS:** Environment protection department.
- **Contact:** -
- **Date of previous version** 09/17/2026
- **Date of preparation** 09/18/2026
- **Abbreviations and acronyms:**
 - IMDG: International Maritime Code for Dangerous Goods
 - DOT: US Department of Transportation
 - IATA: International Air Transport Association
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - ELINCS: European List of Notified Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - NFPA: National Fire Protection Association (USA)
 - HMIS: Hazardous Materials Identification System (USA)
 - VOC: Volatile Organic Compounds (USA, EU)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - NIOSH: National Institute for Occupational Safety
 - OSHA: Occupational Safety & Health
 - TLV: Threshold Limit Value
 - PEL: Permissible Exposure Limit
 - REL: Recommended Exposure Limit
 - Acute toxicity - oral 4: Acute toxicity – Category 4
 - Acute toxicity - inhalation 3: Acute toxicity – Category 3
 - Skin irritation 2: Skin corrosion/irritation – Category 2
 - Eye irritation 2A: Serious eye damage/eye irritation – Category 2A
 - Carcinogenicity 2: Carcinogenicity – Category 2
 - Reproductive toxicity 2: Reproductive toxicity – Category 2

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 09/18/2026

Revision date 09/18/2026

Trade name: Comprehensive Fatty Acid Methyl Ester Mixture 4

(Contd. from page 11)

Specific target organ toxicity (single exposure) 3: Specific target organ toxicity (single exposure) – Category 3

Specific target organ toxicity (repeated exposure) 1: Specific target organ toxicity (repeated exposure) – Category 1

· *** Data compared to the previous version altered.**

US