



## Safety Data Sheet acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

### 1 Identification

- **Product identifier**
- **Trade name:** Oleic Acid
- **Article number:** 90260
- **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**



GHS02 Flame

Flam. Liq. 2      H225 Highly flammable liquid and vapor.



GHS07

Skin Irrit. 2      H315 Causes skin irritation.  
Eye Irrit. 2A      H319 Causes serious eye irritation.  
STOT SE 3      H335 May cause respiratory irritation.

.....

Aquatic Acute 2      H401 Toxic to aquatic life.

- **Label elements**

- **GHS label elements**

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

(Contd. on page 2)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 1)

- **Hazard pictograms**



GHS02 GHS07

- **Signal word** Danger

- **Hazard-determining components of labeling:**

Oleic Acid

- **Hazard statements**

H225 Highly flammable liquid and vapor.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H401 Toxic to aquatic life.

- **Precautionary statements**

P210

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P240

Ground/bond container and receiving equipment.

P241

Use explosion-proof electrical/ventilating/lighting/equipment.

P242

Use only non-sparking tools.

P243

Take precautionary measures against static discharge.

P261

Avoid breathing dust/fume/gas/mist/vapors/spray

P264

Wash thoroughly after handling.

P271

Use only outdoors or in a well-ventilated area.

P273

Avoid release to the environment.

P280

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

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

P312

Call a poison center/doctor if you feel unwell.

P321

Specific treatment (see on this label).

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.

P370+P378

In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.

P403+P233

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

P403+P235

Store in a well-ventilated place. Keep cool.

P405

Store locked up.

P501

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

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 3

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 2

Fire = 3

Reactivity = 0

(Contd. on page 3)

US

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 2)

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

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

- **Dangerous components:**

CAS: 64-17-5 RTECS: KQ6300000	ethanol	50.0%
CAS: 112-80-1 RTECS: RG2275000	Oleic Acid	50.0%

### 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** 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:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most 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.  
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:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
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.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

US

(Contd. on page 4)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 3)

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

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 item 13.

Ensure adequate ventilation.

- **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.

- **Protective Action Criteria for Chemicals**

- **PAC-1:**

64-17-5	ethanol	1,800 ppm
112-80-1	Oleic Acid	220 mg/m <sup>3</sup>

- **PAC-2:**

64-17-5	ethanol	3300* ppm
112-80-1	Oleic Acid	2,400 mg/m <sup>3</sup>

- **PAC-3:**

64-17-5	ethanol	15000* ppm
112-80-1	Oleic Acid	15,000 mg/m <sup>3</sup>

### 7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

- **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:** Store in a cool location.

· **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 4)

- **Control parameters**

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

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

64-17-5 ethanol	
PEL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV	Short-term value: 1000 ppm
	A3

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**

- **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.

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

US

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 5)

## 9 Physical and chemical properties

- Information on basic physical and chemical properties

- General Information

- Appearance:

- Form:

Liquid

- Color:

According to product specification

- Odor:

Characteristic

- Structural Formula

C<sub>18</sub>H<sub>34</sub>O<sub>2</sub>

- Molecular Weight

282.5

- Odor threshold:

Not determined.

- Formulation

A solution in ethanol

- pH-value:

Not determined.

- Change in condition

- Melting point/Melting range:

Undetermined.

- Boiling point/Boiling range:

78 °C (172.4 °F)

- Flash point:

13 °C (55.4 °F)

- Flammability (solid, gaseous):

Not applicable.

- Ignition temperature:

360 °C (680 °F)

- Decomposition temperature:

Not determined.

- Auto igniting:

Product is not selfigniting.

- Danger of explosion:

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- Explosion limits:

- Lower:

3.5 Vol %

- Upper:

15 Vol %

- Vapor pressure at 20 °C (68 °F):

59 hPa (44.3 mm Hg)

- Density at 20 °C (68 °F):

0.845 g/cm<sup>3</sup> (7.05153 lbs/gal)

- Bulk density:

842 kg/m<sup>3</sup>

- Relative density

Not determined.

- Vapor density

Not determined.

- Evaporation rate

Not determined.

- Solubility in / Miscibility with

- Water:

Fully miscible.

- Partition coefficient (n-octanol/water):

Not determined.

- Viscosity:

- Dynamic:

Not determined.

- Kinematic:

Not determined.

- SOLUBILITY

0.15 M Tris-HCl pH 8.5: &gt;1 mg/ml; DMF: &gt;100 mg/ml;

DMSO: &gt;100 mg/ml; EtOH: &gt;100 mg/ml

- Solvent content:

- Organic solvents:

50.0 %

- VOC content:

50.00 %

422.5 g/l / 3.53 lb/gal

(Contd. on page 7)

-US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 6)

<b>Solids content:</b>	50.0 %
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<b>Other information</b>	No further relevant information available.
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## 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.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

### 64-17-5 ethanol

Oral	TDLO	1.14 ml/kg (man)
	LD50	7,060 mg/kg (rat)
Dermal	TDLO	650 (man)
	LD50	40,000 mg/kg (rat)
Inhalative	TCLO	1,800 (hmn)
	LC50	10 h - 20,000 mg/m <sup>3</sup> (rat)
	LD50 Inhalation TCLO	1,800 mg/m <sup>3</sup> /30m (hmn)
Irritation of skin	TDLO	1,800 mg/kg (wmn)
	Intraperitoneal LD50	280 mg/kg (rat)

### 112-80-1 Oleic Acid

Oral	LD50	28,000 mg/kg (mouse)
		25,000 mg/kg (rat)
	Interperitoneal LDLO	282 mg/kg (mouse)
	Intravenous LD50	230 mg/kg (mouse)
		2.4 mg/kg (rat)

- **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:  
Irritant

(Contd. on page 8)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 7)

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

64-17-5 ethanol

1

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

## 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.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- **UN-Number**

- **DOT, IMDG, IATA**

UN1170

- **UN proper shipping name**

- **DOT**

- **IMDG**

Ethanol solutions

ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

- **IATA**

Ethanol solution

(Contd. on page 9)

US



# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 8)

· Transport hazard class(es)

· DOT



· Class

3 Flammable liquids

· Label

3

· IMDG, IATA



· Class

3 Flammable liquids

· Label

3

· Packing group

· DOT, IMDG, IATA

II

· Environmental hazards:

Not applicable.

· Special precautions for user

Warning: Flammable liquids

· Hazard identification number (Kemler code):

33

· EMS Number:

F-E,S-D

· Stowage Category

A

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

· Transport/Additional information:

· DOT

· Quantity limitations

On passenger aircraft/rail: 5 L

On cargo aircraft only: 60 L

· IMDG

· Limited quantities (LQ)

1L

· Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 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.

· UN "Model Regulation":

UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II

US

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

Trade name: Oleic Acid

(Contd. from page 9)

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

- **Sara**

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

All components have the value ACTIVE.

- **Hazardous Air Pollutants**

None of the ingredients is listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

None of the ingredients is listed.

- **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:**

64-17-5 ethanol

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value)**

64-17-5 ethanol

A3

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.

- **Contact:** -

- **Date of preparation / last revision** 03/31/2022 / -

- **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

(Contd. on page 11)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/31/2022

Revision date 03/31/2022

**Trade name: Oleic Acid**

(Contd. from page 10)

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  
Flam. Liq. 2: Flammable liquids – Category 2  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3  
Aquatic Acute 2: Hazardous to the aquatic environment - acute aquatic hazard – Category 2

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

US