

**SIGMA-ALDRICH**

## Material Safety Data Sheet

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Version: 1.70

### Section 1 - Product and Company Information

|                                  |  |
|----------------------------------|--|
| <b>Product Name</b>              | Ethyl acetate, Biotech grade solvent, 99.8+% |
| <b>Product Number</b>            | 494518                                       |
| <b>Brand</b>                     | Aldrich Chemical                             |
| <b>Company Address</b>           | Sigma-Aldrich<br>3050 Spruce Street          |
| <b>City, State, Zip, Country</b> | SAINT LOUIS, MO 63103 US                     |
| <b>Technical Phone:</b>          | 800-325-5832                                 |
| <b>Fax:</b>                      | 800-325-5052                                 |
| <b>Emergency Phone:</b>          | 314-778-6555                                 |

### Section 2 - Composition/Information on Ingredient

| <u>Substance Name</u> | <u>CAS #</u> | <u>SARA 313</u> | <u>EC no</u> | <u>Annex I Index Number</u> |
|-----------------------|--------------|-----------------|--------------|-----------------------------|
| ETHYL ACETATE         | 141-78-6     | No              | 205-500-4    | 607-022-00-5                |

|                 |  |
|-----------------|--|
| <b>Formula</b>  | C4H8O2   |
| <b>Synonyms</b> | Acetic ether, Acetidin, Acetoxyethane, Aethylacetat (German), Essigester (German), Ethylacetat (Dutch), Ethyl acetate (ACGIH:OSHA), Ethyl acetic ester, Ethyle (acetate d') (French), Ethylester kyseliny octove (Czech), Ethyl ethanoate, Etile (acetato di) (Italian), Octan etylu (Polish), RCRA waste number U112, Vinegar naphtha |

### Section 3 - Hazards Identification

#### Emergency Overview

Flammable. Irritant.  
Irritating to eyes, respiratory system and skin. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.  
Target organ(s): Liver, Kidneys.

|                    |                 |               |
|--------------------|-----------------|---------------|
| <b>HMIS Rating</b> |                 |               |
| Health: 2*         | Flammability: 3 | Reactivity: 1 |

|                    |                 |               |
|--------------------|-----------------|---------------|
| <b>NFPA Rating</b> |                 |               |
| Health: 2          | Flammability: 3 | Reactivity: 1 |

\*additional chronic hazards present.

### Section 4 - First Aid Measures

#### Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

#### Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water.

#### Eye Exposure

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

### Section 5 - Fire Fighting Measures

**Flammable Hazards:** Yes

#### Explosion Hazards

Vapor may travel considerable distance to source of ignition and flash back.

Container explosion may occur under fire conditions.

Forms explosive mixtures in air.

|                     |         |       |
|---------------------|---------|-------|
| <b>Flash Point:</b> | 26.6 °F | -3 °C |
|---------------------|---------|-------|

|                          |                     |                      |
|--------------------------|---------------------|----------------------|
| <b>Explosion Limits:</b> | <b>Lower:</b> 2.2 % | <b>Upper:</b> 11.5 % |
|--------------------------|---------------------|----------------------|

|                           |        |                          |
|---------------------------|--------|--------------------------|
| <b>Autoignition Temp:</b> | 427 °C | <b>Flammability:</b> Yes |
|---------------------------|--------|--------------------------|

#### Extinguishing Media

##### Suitable

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

#### Firefighting

##### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### Specific Hazard(s)

Flammable liquid. Emits toxic fumes under fire conditions.

##### Specific Method(s) of Fire Fighting

Use water spray to cool fire-exposed containers.

### Section 6 - Accidental Release Measures

#### Procedure to be Followed in Case of Leak or Spill

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

#### Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### Methods for Cleaning Up

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

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**Storage**  
**Suitable**  
Keep tightly closed. Keep away from heat, sparks, and open flame.

## Section 8 - Exposure Controls / PPE

**Engineering Controls**  
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

### Personal Protective Equipment

#### Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

#### Hand

Compatible chemical-resistant gloves.

#### Eye

Chemical safety goggles.

### General Hygiene Measures

Remove and wash contaminated clothing promptly. Wash thoroughly after handling.

### Exposure Limits

| Country | Type  | Value     |
|---------|-------|-----------|
| Poland  | NDS   | 200 MG/M3 |
| Poland  | NDSch | 600 MG/M3 |
| Poland  | NDSP  | -         |

### Exposure Limits, RTECS

| Country | Source            | Type | Value                       |
|---------|-------------------|------|-----------------------------|
| USA     | ACGIH             | TWA  | 400 PPM                     |
| USA     | MSHA Standard-air | TWA  | 400 PPM (1400 MG/M3)        |
| USA     | OSHA              | PEL  | 8H TWA 400 PPM (1400 MG/M3) |
| USA     | NIOSH             | TWA  | 400 PPM                     |

## Section 9 - Physical/Chemical Properties

**Appearance**  
**Physical State**  
Liquid

**Molecular Weight:** 88.11 AMU

| Property              | Value            | At Temperature or Pressure |
|-----------------------|------------------|----------------------------|
| pH                    | N/A              |                            |
| BP/BP Range           | 76.5 - 77.5 °C   | 760 mmHg                   |
| MP/MP Range           | -84 °C           |                            |
| Freezing Point        | N/A              |                            |
| Vapor Pressure        | 73 mmHg          | 20 °C                      |
| Vapor Density         | 3 g/l            |                            |
| Saturated Vapor Conc. | N/A              |                            |
| SG/Density            | 0.9 g/cm3        |                            |
| Bulk Density          | N/A              |                            |
| Odor Threshold        | 0.96 - 176.9 ppm |                            |
| Volatile%             | N/A              |                            |
| VOC Content           | N/A              |                            |

**Water Content** < 0.05 %  
**Solvent Content** N/A  
**Evaporation Rate** N/A  
**Viscosity** 0.44 Pas 25 °C  
**Surface Tension** 24 mN/m 20 °C  
**Partition Coefficient** Log Kow: 0.73  
**Decomposition Temp.** N/A  
**Flash Point °F** 26.6 °F  
**Flash Point °C** -3 °C

Method: closed cup  
Method: closed cup

**Explosion Limits** Lower: 2.2 %  
Upper: 11.5 % 38 °C

**Flammability** N/A  
**Autoignition Temp** 427 °C  
**Refractive Index** 1.372

### Solubility

**Solubility in Water:** Soluble.

**Other Solvents:** SOLUBLE IN ALCOHOL, ETHER,, ACETONE, BENZENE, MISCIBLE WITH CHLOROFORM, OILS.

N/A = not available

## Section 10 - Stability and Reactivity

### Stability

#### Stable

Stable.

#### Conditions to Avoid

Moisture

#### Materials to Avoid

Strong oxidizing agents.

### Hazardous Decomposition Products

#### Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide.

### Hazardous Polymerization

#### Hazardous Polymerization

Will not occur.

## Section 11 - Toxicological Information

### Route of Exposure

#### Skin Contact

Causes skin irritation.

#### Skin Absorption

May be harmful if absorbed through the skin.

#### Eye Contact

Causes eye irritation.

#### Inhalation

Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

#### Ingestion

May be harmful if swallowed.

### Target Organ(s) or System(s)

Central nervous system. Liver. Kidneys. Blood.

### Signs and Symptoms of Exposure

Can cause CNS depression. Exposure can cause: Drowsiness. Narcotic effect. Anemia.

**RTECS Number:** AH5425000

### Toxicity Data

Oral - Rat: 5620 mg/kg (LD50)

Inhalation - Rat: 200,000 mg/m3 (LC50)

Remarks: Behavioral:Somnolence (general depressed activity).  
Lungs, Thorax, or Respiration:Acute pulmonary edema.  
Gastrointestinal:Changes in structure or function of salivary glands.

Oral - Mouse: 4100 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).  
Behavioral:Change in motor activity (specific assay).  
Behavioral:Coma.

Inhalation - Mouse: 45,000 mg/m3 (LC50)

Intraperitoneal - Mouse: 709 MG/KG (LD50)

Subcutaneous - Cat: 3 GM/KG (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).  
Gastrointestinal:Nausea or vomiting.  
Blood:Other changes.

Oral - Rabbit: 4935 mg/kg (LD50)

Skin - Rabbit: >20 MU/KG (LD50)

Oral - Guinea pig: 5500 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).  
Behavioral:Change in motor activity (specific assay).  
Behavioral:Coma.

Subcutaneous - Guinea pig: 3 GM/KG (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).

#### Irritation Data

Eyes - Human: 400 ppm

#### Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

#### Chronic Exposure - Mutagen

| <u>Species</u> | <u>Dose</u> | <u>Cell Type</u> | <u>Mutation test</u> |
|----------------|-------------|------------------|----------------------|
| Hamster        | 9 GW/L      | fibroblast       | Cytogenetic analysis |

### Section 12 - Ecological Information

#### Physical Properties Affecting Ecotoxicity

**BOD:** **BOD after 5 Days:**  
26.6 - 57.1 %

#### Acute Ecotoxicity Tests

##### Test Type

EC50 Algae

**Time:** **Value:**  
24.0 h 4,300 mg/l

##### Test Type

EC50 Algae

##### Species

SELENASTRUM

**Time:** **Value:**  
72.0 h 1,800 - 3,200 mg/l

##### Test Type

EC50 Daphnia

##### Species

Daphnia magna

**Time:** **Value:**  
24.0 h 2,300 - 3,090 mg/l

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#### Test Type

LC50 Fish

#### Species

Onchorhynchus mykiss (Rainbow trout)

**Time:** **Value:**  
96.0 h 350 - 600 mg/l

#### Test Type

LC50 Fish

#### Species

Pimephales promelas (Fathead minnow)

**Time:** **Value:**  
96.0 h 220 - 250 mg/l

### Section 13 - Disposal Considerations

#### Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.  
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.  
Observe all federal, state, and local environmental regulations.

### Section 14 - Transport Information

#### DOT

**Proper Shipping Name:** Ethyl acetate

**UN#:** 1173

**Class:** 3

**Packing Group:** Packing Group II

**Hazard Label:** Flammable liquid

**PIH:** Not PIH

#### IATA

**Proper Shipping Name:** Ethyl acetate

**IATA UN Number:** 1173

**Hazard Class:** 3

**Packing Group:** II

### Section 15 - Regulatory Information

#### EU Directives Classification

**Symbol of Danger:** F Xi

#### Indication of Danger

Highly Flammable. Irritant.

**Risk Statements** **R:** 11 36 66 67

Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

**Safety Statements** **S:** 16 26 33

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges.

#### US Classification and Label Text

#### Indication of Danger

Flammable. Irritant.

#### Risk Statements

Irritating to eyes, respiratory system and skin. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

#### Safety Statements

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges.

#### US Statements

Target organ(s): Liver. Kidneys.

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**United States Regulatory Information**

**SARA Listed:** No

**TSCA Inventory Item:** Yes

**Canada Regulatory Information****WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** Yes

**NDSL:** No

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**Section 16 - Other Information**

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**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2006 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.