ETHYL FLUOROACETATE

1. Product Identification

Synonyms: Monofluoroacetic Acid Ethyl Ester
CAS No.: 459-72-3
Molecular Weight: 106.10
Chemical Formula: C4H7FO2
Product Codes: E0146

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
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<tbody>
<tr>
<td>459-72-3</td>
<td>Ethyl fluoroacetate</td>
<td>97</td>
<td>207-297-8</td>
</tr>
</tbody>
</table>

3. Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 30 deg C.

Danger! May be fatal if inhaled, absorbed through the skin or swallowed. Flammable liquid and vapor. Causes severe eye and skin irritation. Lachrymator (substance which increases the flow of tears). May be absorbed through intact skin. May cause respiratory tract irritation. May cause central nervous system depression.

Target Organs: Eyes, skin.

Potential Health Effects

Eye: Causes severe eye irritation. May cause opacity and scarring. Lachrymator (substance which increases the flow of tears).

Skin: Causes severe skin irritation. May be fatal if absorbed through the skin. May cause reddening of the skin.

Ingestion: May be fatal if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: May be fatal if inhaled. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Vapors may cause dizziness or suffocation.

Chronic: Chronic exposure may cause effects similar to those of acute exposure.

4. First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

5. Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** Use water spray to cool fire-exposed containers. Use water fog, dry chemical, carbon dioxide or alcohol type foam.

Flash Point: 30 deg C (86.00 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFFA Rating: (estimated) Health: 3; Flammability: 3; Instability: 1

6. Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

7. Handling and Storage

**Handling:** Wash thoroughly after handling. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

8. Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Use only under a chemical fume hood.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
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</thead>
<tbody>
<tr>
<td>Ethyl fluoroacetate</td>
<td>none listed</td>
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<td>none listed</td>
</tr>
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</table>

**OSHA Vacated PELs:** Ethyl fluoroacetate: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms
9. Physical and Chemical Properties

- **Physical State:** Liquid
- **Appearance:** clear, colorless
- **Odor:** acetic odor
- **pH:** Not available.
- **Vapor Pressure:** 3.7 hPa @ 20°C
- **Vapor Density:** 3.7
- **Evaporation Rate:** Not available.
- **Viscosity:** Not available.
- **Boiling Point:** 119.2 deg C @ 753 mm Hg
- **Freezing/Melting Point:** Not available.
- **Decomposition Temperature:** Not available.
- **Solubility:** decomposes in water
- **Specific Gravity/Density:** 1.090 g/ml
- **Molecular Formula:** C₄H₇FO₂
- **Molecular Weight:** 106.10

10. Stability and Reactivity

- **Chemical Stability:** Stable under normal temperatures and pressures.
- **Conditions to Avoid:** Incompatible materials, ignition sources, excess heat.
- **Incompatibilities with Other Materials:** Oxidizing agents, reducing agents, acids, bases.
- **Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, hydrogen fluoride gas, hydrogen bromide.
- **Hazardous Polymerization:** Has not been reported.

11. Toxicological Information

- **RTECS#:**
- **CAS# 459-72-3:** AH7175000
- **LD50/LC50:** Not available.
- Oral, rat: LD50=4680ug/kg—Taken from Fluoroacetic Acid which almost has identical LD50
- **Carcinogenicity:**
  - CAS# 459-72-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
- **Epidemiology:** No information found
- **Teratogenicity:** No information found
- **Reproductive Effects:** No information found
- **Mutagenicity:** No information found
- **Neurotoxicity:** No information found
- **Other Studies:**

12. Ecological Information

No information available.

13. Disposal Considerations
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.
**RCRA U-Series:** None listed.

### 14. Transport Information

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<th>Canada TDG</th>
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### 15. Regulatory Information

**US FEDERAL**

**TSCA**
- CAS# 459-72-3 is listed on the TSCA inventory.

**Health & Safety Reporting List**
- None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules**
- None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b**
- None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
- None of the chemicals in this material have a SNUR under TSCA.

**CERCLA Hazardous Substances and corresponding RQs**
- None of the chemicals in this material have an RQ.

**SARA Section 302 Extremely Hazardous Substances**
- None of the chemicals in this product have a TPQ.

**Clean Air Act:**
- This material does not contain any hazardous air pollutants.
- This material does not contain any Class 1 Ozone depletors.
- This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**
- None of the chemicals in this product are listed as Hazardous Substances under the CWA.
- None of the chemicals in this product are listed as Priority Pollutants under the CWA.
- None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
- None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
- CAS# 459-72-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**
- California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**
- T+

**Risk Phrases:**
- R 10 Flammable.
- R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

**Safety Phrases:**
- S 16 Keep away from sources of ignition - No smoking.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 7/9 Keep container tightly closed and in a well-ventilated place.
S 28A After contact with skin, wash immediately with plenty of water.

WGK (Water Danger/Protection)
CAS# 459-72-3: No information available.
Canada - DSL/NDSL
CAS# 459-72-3 is listed on Canada's NDSL List.
Canada - WHMIS
This product has a WHMIS classification of B2, D1A.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

16. Other Information

Product Use:
Laboratory Reagent.

Revision Information:

Disclaimer:
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