



# ETHYL ACETOACETATE

## 1. Product Identification

**Synonyms:** Butanoic acid, 3-oxo-, Ethyl ester; ethyl acetyl acetate; Acetoacetic acid, ethyl ester; Diacetic Ether; Ethyl 3-oxobutanoate  
**CAS No.:** 141-97-9  
**Molecular Weight:** 130.14  
**Chemical Formula:** CH<sub>3</sub>COCH<sub>2</sub>COOC<sub>2</sub>H<sub>5</sub>  
**Product Codes:** 2424

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ethyl Acetoacetate	141-97-9	90 - 100%	Yes

## 3. Hazards Identification

### Emergency Overview

**WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 1 - Slight  
Flammability Rating: 2 - Moderate  
Reactivity Rating: 1 - Slight  
Contact Rating: 2 - Moderate  
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES;  
CLASS B EXTINGUISHER  
Storage Color Code: Red (Flammable)

### Potential Health Effects

#### Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

#### Ingestion:

Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.

#### Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain.

#### Eye Contact:

Causes irritation, redness, and pain.

#### Chronic Exposure:

No information found.

#### Aggravation of Pre-existing Conditions:

No information found.

## 4. First Aid Measures

#### Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

#### Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

#### Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

## 5. Fire Fighting Measures

### Fire:

Flash point: 57C (135F) CC

Autoignition temperature: 295C (563F)

Flammable limits in air % by volume:

lcl: 1.4; ucl: 9.5

Flammable.

( lcl @ 93C; ucl @ 176C )

### Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

Sensitive to static discharge.

### Fire Extinguishing Media:

Dry chemical, alcohol foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

### Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

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## 7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### Airborne Exposure Limits:

None established.

### Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### Personal Respirators (NIOSH Approved):

For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

### Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### Appearance:

Clear, colorless liquid.

### Odor:

Fruity odor.

### Solubility:

Soluble in about 35 parts water.

### Specific Gravity:

1.03 @ 20C/4C

### pH:

No information found.

### % Volatiles by volume @ 21C (70F):

100

### Boiling Point:

**Boiling Point:**  
181C (358F)  
**Melting Point:**  
-43C (-45F)  
**Vapor Density (Air=1):**  
4.48  
**Vapor Pressure (mm Hg):**  
1 @ 28.5C (82F)  
**Evaporation Rate (BuAc=1):**  
No information found.

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## 10. Stability and Reactivity

**Stability:**  
Stable under ordinary conditions of use and storage.  
**Hazardous Decomposition Products:**  
Carbon dioxide and carbon monoxide may form when heated to decomposition.  
**Hazardous Polymerization:**  
Will not occur.  
**Incompatibilities:**  
Acids, bases, oxides and reducing agents. Reacts with strong oxidizers.  
**Conditions to Avoid:**  
Heat, flames, ignition sources and incompatibles.

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## 11. Toxicological Information

Oral rat LD50: 3980 mg/Kg; Investigated as a mutagen.

-----\Cancer Lists\-----			
Ingredient	---NTP Known	Carcinogen--- Anticipated	IARC Category
Ethyl Acetoacetate (141-97-9)	No	No	None

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## 12. Ecological Information

**Environmental Fate:**  
No information found.  
**Environmental Toxicity:**  
No information found.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### Domestic (Land, D.O.T.)

**Proper Shipping Name:** FLAMMABLE LIQUIDS, N.O.S. (ETHYL ACETOACETATE)  
**Hazard Class:** 3  
**UN/NA:** UN1993  
**Packing Group:** III  
**Information reported for product/size:** 3KG

### International (Water, I.M.O.)

**Proper Shipping Name:** FLAMMABLE LIQUIDS, N.O.S. (ETHYL ACETOACETATE)  
**Hazard Class:** 3  
**UN/NA:** UN1993  
**Packing Group:** III  
**Information reported for product/size:** 3KG

### International (Air, I.C.A.O.)

**Proper Shipping Name:** FLAMMABLE LIQUIDS, N.O.S. (ETHYL ACETOACETATE)  
**Hazard Class:** 3  
**UN/NA:** UN1993  
**Packing Group:** III  
**Information reported for product/size:** 3KG

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	Australia
Ethyl Acetoacetate (141-97-9)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----				
Ingredient	Korea	DSL	--Canada-- NDSL	Phil.
Ethyl Acetoacetate (141-97-9)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302- RQ	TPQ	List	SARA 313- Chemical Catg.
Ethyl Acetoacetate (141-97-9)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Ethyl Acetoacetate (141-97-9)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
 SARA 311/312: Acute: Yes Chronic: No Fire: Yes Pressure: No  
 Reactivity: No (Pure / Liquid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 2 Flammability: 2 Reactivity: 0

**Label Hazard Warning:**

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

**Label Precautions:**

- Keep away from heat, sparks and flame.
- Avoid contact with eyes, skin and clothing.
- Use only with adequate ventilation.
- Wash thoroughly after handling.
- Keep container closed.
- Avoid breathing vapor.

**Label First Aid:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 3, 14.

**Disclaimer:**

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