

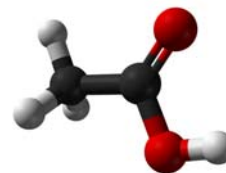


## ACETIC ACID

Chemical Formula: CH<sub>3</sub>COOH

CAS Registry Number: 64-19-7

### PRODUCT INFORMATION



#### Synonyms:

*Acetic acid*  
*Acetic Acid Glacial*  
*ACETIC ACID, GLACIAL*  
*Acide acetique*  
*acido acetico, de una*  
*concentracion superior al 10*  
*por ciento, en peso, de acido*  
*acetico*  
*Aci-Jel*  
*E 260*  
*ESSIGSAEURE UEBER 10 BIS*  
*40%*  
*ESSIGSAEURE UEBER 40%*  
*Essigsauere*  
*Ethanoic acid*  
*Ethanoic acid monomer*  
*Ethylic acid*  
*Glacial acetic acid*  
*Methanecarboxylic acid*  
*NSC 111201*  
*NSC 112209*  
*NSC 115870*  
*NSC 127175*  
*NSC 132953*  
*NSC 406306*  
*UN 2789*  
*UN 2789*  
*UN 2790*  
*Vinegar acid*

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## **Physical and Chemical Properties**

**Appearance:** Clear, colorless liquid.

**Odor:** Strong, vinegar-like.

**Solubility:** Infinitely soluble.

**Density:** 1.05

**pH:** 2.4 (1.0M solution)

**% Volatiles by volume @ 21°C (70°F):** 100

**Boiling Point:** 118°C (244°F)

**Melting Point:** 16.6°C (63°F)

**Vapor Density (Air=1):** 2.1

**Vapor Pressure (mm Hg):** 11 @ 20°C (68°F)

**Evaporation Rate (BuAc=1):** 0.97

## **Stability and Reactivity**

### **Stability:**

Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability. Releases heat and toxic, irritating vapors when mixed with water. Acetic acid contracts slightly upon freezing which may cause the container to burst.

### **Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition. May also release toxic and irritating vapors.

### **Hazardous Polymerization:**

Will not occur.

### **Incompatibilities:**

Acetic Acid is incompatible with chromic acid, nitric acid, ethylene glycol, perchloric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, most metals (except aluminum), carbonates, hydroxides, oxides, and phosphates.

### **Conditions to Avoid:**

Heat, flame, ignition sources, freezing, incompatibles

## **Fire Fighting Measures**

### **Fire:**

Flash point: 40°C (104°F) CC

Autoignition temperature: 427°C (801°F)

Flammable limits in air % by volume:



lcl: 4.0; uel: 16.0

Flammable Liquid and Vapor!

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Reacts with most metals to produce hydrogen gas, which can form an explosive mixture with air.

**Fire Extinguishing Media:**

Water, dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

**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. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Water diluted acid can react with metals to form hydrogen gas.

## Hazards Identification

### Emergency Overview

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**POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE. FLAMMABLE LIQUID AND VAPOR.**

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

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Health Rating: 3 - Severe (Poison)

Flammability Rating: 2 - Moderate

Reactivity Rating: 2 - Moderate

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES;

CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

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### Potential Health Effects

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**Inhalation:**

Inhalation of concentrated vapors may cause serious damage to the lining of the nose, throat, and lungs. Breathing difficulties may occur. Neither odor nor degree of irritation are adequate to indicate vapor concentration.

**Ingestion:**

Swallowing can cause severe injury leading to death. Symptoms include sore throat, vomiting, and diarrhea. Ingestion of as little as 1.0 ml has resulted in perforation of the esophagus.

**Skin Contact:**

Contact with concentrated solution may cause serious damage to the skin. Effects may include redness, pain, skin burns. High vapor concentrations may cause skin sensitization.

**Eye Contact:**

Eye contact with concentrated solutions may cause severe eye damage followed by loss of sight. Exposure to vapor may cause intense watering and irritation to eyes.

**Chronic Exposure:**

Repeated or prolonged exposures may cause darkening of the skin, erosion of exposed front teeth, and chronic inflammation of the nose, throat, and bronchial tubes.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

## **First Aid Measures**

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

**Ingestion:**

DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

**Eye Contact:**

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

## **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. Protect from freezing. Store above 17C (63F). 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.



## Ecological Information

### **Environmental Fate:**

When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into air, this material is expected to have a half-life between 10 and 30 days. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. Standard dilution BOD5/TOD = 58% When released into the soil, this material is expected to readily biodegrade. This material is not expected to significantly bioaccumulate. This material has an estimated bioconcentration factor (BCF) of less than 100.

### **Environmental Toxicity:**

This material is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

For glacial acetic acid:

EC50 (wheat fumigation) = 23.3 mg/m<sup>3</sup>/2-hr, effect: leaf injury

LC50 (shrimp) = 100 - 300 mg/l/48-hr

LC50 (fathead minnow) = 88 mg/l/96-hr

This material may be toxic to aquatic life.

## Other Information

**NFPA Ratings:** Health: 3 Flammability: 2 Reactivity: 0

### **Label Hazard Warning:**

POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE. FLAMMABLE LIQUID AND VAPOR.

### **Label Precautions:**

Do not get in eyes, on skin, or on clothing.

Do not breathe vapor or mist.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Keep away from heat, sparks and flame.

### **Label First Aid:**

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