

# ACETIC ACID, GLACIAL

## Material Safety Data Sheet

### ACETIC ACID, GLACIAL

#### 1. Chemical Product and Company Identification

**MSDS Name:** ACETIC ACID, GLACIAL

**Synonyms or Generic ID:** Acetic Acid, Glacial, Ethanoic acid, Methane Carboxylic Acid.

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

**Molecular Wt:** 60.05

#### 2. Composition/Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS	TLV	Hazard
64-19-7	Acetic Acid, Glacial	≥99%	200-580-7	(TWA) 10 ppm	Corrosive

**Hazard Symbols:** C, B3

**Risk Phrases:** 10 35

#### 3. Hazards Identification

##### EMERGENCY OVERVIEW

**Appearance:** acetic acid is a clear, colourless liquid above 16 deg C and colourless, ice like crystals below 16 deg C. Has a strong, pungent odour of vinegar. Hygroscopic. COMBUSTIBLE LIQUID AND VAPOUR. Vapour is heavier than air and may spread long distances. Distant ignition and flashback are possible. Harmful if inhaled or swallowed. Vapour is irritating to the respiratory tract. May cause lung injury--effects may be delayed. Concentrated solutions are CORROSIVE to eyes and skin. Causes permanent eye damage, including blindness, and skin burns, including tissue death and permanent scarring. May be an aspiration hazard. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

Target Organs: Teeth, eyes, skin, mucous membranes.

### **Potential Health Effects**

**Primary Route(s) of Entry:** Inhalation and ingestion. Skin contact. Skin absorption.

**Effects of Acute Exposure:** May be fatal by ingestion, inhalation or skin absorption. Corrosive.

**LD50/LC50:** CAS# 64-19-7: Inhalation, mouse: LC50 = 5620 ppm/1H. Oral, rat: LD50 – 3310 mg/kg. Skin, rabbit: LD50 = 1060 mg/kg.

**Eyes:** Causes severe eye irritation. May cause severe burns and loss of vision. May cause permanent damage. Lachrymator.

**Skin:** Causes severe skin burns. Defatting dermatitis with prolonged use.

**Ingestion:** May causes severe and permanent damage to the digestive tract. Causes severe pain, nausea, vomiting, diarrhoea. Burns in mouth, pharynx and gastrointestinal tract. Convulsions. Kidney damage. Vomiting of blood, Shock, possible coma, and possible death.

**Inhalation:** Effects may be delayed. Causes chemical burns to the respiratory tract. May cause respiratory tract inflammation.

Destructive to tissues of mucous membranes. Headache. Nausea. Vomiting, Bronchopneumonia and pulmonary edema. Chemical pneumonitis. Corrosive. May be fatal. Central nervous system depression.

**Effects of Chronic Exposure:** Prolonged or repeated skin contact may cause dermatitis. Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause erosion of teeth. Conjunctivitis, darkened coloration of the skin and dental erosion.

Pharyngitis, constipation and possible skin sensitizer. Long-term exposure may cause cumulative systemic injury, particularly to vital organs such as the liver and kidneys. To the best of our knowledge, the chronic toxicity of this substance has not been fully investigated.

## **4. First Aid Measures**

**Eyes:** Flush skin and eyes with copious amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. Contact with liquid or vapor causes severe burns and possible irreversible eye damage. Get medical aid immediately.

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothes before reuse. Discard shoes.

**Ingestion:** Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Consult a physician immediately. Never give anything by mouth to an unconscious person. Keep patient warm and quiet.

**Inhalation:** Get medical aid immediately. Remove patient from exposure to fresh air immediately. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Call a physician.

**Notes to Physician:** Treat symptomatically and supportively.

**Antidote:** No specific antidote exists.

## 5. Fire Fighting Measures

**General Information:** Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Reacts with most metals to form highly flammable hydrogen gas which can form explosive mixtures with air. Cool containers with water spray. Disperse vapours with water spray if they have not ignited.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers.

**Auto-ignition Temperature:** 800°F (426.67°C)

**Flash Point:** 103°F (39.44°C)

**NFPA Rating:** Health – 3, Flammability – 2, Instability – 0.

**Explosion Limits:** Lower: 5.4 Upper: 16

**Special Fire and Explosion Hazards:** Flash back along vapour trail may occur; eliminate sources of ignition. Emits toxic fumes under fire conditions. Empty container may contain explosive or flammable residue. Hazardous combustion products – Oxides of carbon.

## **6. Accidental Release Measures**

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

**Spills/Leaks:** Use water spray to dilute spill to a non-flammable mixture. Avoid run-off into storm sewers and ditches which lead to waterways. Wash area with soap and water. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation. Cover with material such as dry soda ash or calcium carbonate and place into a closed container for disposal.

**Steps to be taken in case material is released or spilled:** Evacuate. Shut off all sources of ignition. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Absorb on sand or vermiculite and place in a closed container for disposal. Ventilate area and wash spill site after material pick-up is complete.

**Waste disposal method:** Burn in a chemical incinerator equipped with an after burner and scrubber. According to all applicable regulations. Avoid run-off.

## **7. Handling and Storage**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before re-use. Use with adequate ventilation.

Empty containers retain product residue (liquid and/or vapor), and can be dangerous. Avoid contact with heat, sparks and flame. Do not get on skin or in eyes. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Do not get in eyes, or on skin or clothing. Wash well after use. In accordance with good storage and

handling practices. Do not allow smoking or food consumption while being handled.

**Storage:** Keep away from heat, sparks, and flame. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Store in a suitable container in a dry area above the substance's freezing point. Do not store near alkaline substances. Store in a cool, dry, well-ventilated area away from heated areas, sparks and flame. Store away from acids, alkalis and oxidizing materials. Product is highly hygroscopic. Keep tightly closed. Vapours are heavier than air and may travel along the ground or pool in low areas. Because vapour is heavy, ventilation must be provided at floor level as well as at higher places.

**Storage Code:** White.

## 8. Exposure Control/Personal Protection

**Engineering Controls:** Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits:**

<b>Chemical Name</b>	<b>ACGH</b>	<b>NIOSH</b>	<b>OSHA</b>
Acetic acid, glacial	10 ppm TWA; 25 mg/m <sup>3</sup> TWA; 15 ppm STEL; 37 mg/m <sup>3</sup> STEL	10 ppm TWA; 25 mg/m <sup>3</sup> TWA; 15 ppm STEL; 37 mg/m <sup>3</sup> STEL	10 ppm TWA; 25 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs** Acetic acid: 10 ppm TWA; 25 mg/m<sup>3</sup> TWA.

### 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.

**Skin:** Wear appropriate protective neoprene or polyethylene gloves to prevent skin exposure. Apron or clothing sufficient to protect skin.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure. Neoprene, PVC or polyethylene apron or clothing sufficient to protect skin.

**Respiratory Protection:** Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary. Wear appropriate OSHA/MSHA approved chemical cartridge respirator. If more than TLV, do not breathe vapour. Wear self-contained breathing apparatus.

**Ventilation:** Use only in a chemical fume hood. Adequate ventilation to maintain vapour/dust below TLV.

**Other Protective Equipment:** Make eye bath and emergency shower available.

## 9. Physical and Chemical Properties

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Colourless
<b>Odour:</b>	Pungent odour – acetic odour (vinegar-like)
<b>pH:</b>	2.4 (1 M solution in water (approx. 6%))
<b>Vapour Pressure:</b>	1.52 kPa (11.4 mm Hg) at 20 0C
<b>Vapour Density:</b>	2.07 (air = 1)
<b>Evaporation Rate:</b>	0.97 (n-Butyl acetate = 1)
<b>Viscosity-Dynamic:</b>	1.22 mPa.s (1.22 centipoises) (100% w/w), 2.39 mPa.s (90% w/w) @20 0C.
<b>Boiling Point:</b>	117.9 0C (244.2 0F) glacial
<b>Freezing/Melting Point:</b>	100% (w/w): 16.6 0C (61.9 0F); 80.6% (w/w): -7.4 0C (18.7 0F)
<b>Decomposition Temperature:</b>	No information available.
<b>Solubility:</b>	Soluble in all proportions in water, ethanol, acetone, diethyl ether, glycerol and benzene.
<b>Specific Gravity/Density:</b>	100% (w/w): 1.5 @20 0C; 80% (w/w): 1.8 @15 0C

**Molecular Formula:** C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>  
**Molecular Weight:** 60.0268

## 10. Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:** Incompatible materials, ignition sources, excess heat. Reacts with most common metals to produce hydrogen.

Oxidizing agents, acids, alkalies, chromic acid, peroxides. Alcohols. Sparks or flame. Amines.

**Incompatibilities with Other Materials:** Acetaldehyde, 2-aminoethanol, ammonium nitrate, bromine pentafluoride, chlorine trifluoride, chlorosulfonic acid, chromic acid, chronic anhydride + acetic anhydride, diallyl methyl carbinol + ozone, ethylene diamine, ethyleneimine, hydrogen peroxide, nitric acid, nitric acid + acetone, oleum, perchloric acid, permanganates, phosphorus isocyanate, phosphorus trichloride, potassium hydroxide, potassium-t-butoxide, sodium hydroxide, sodium peroxide, and xylene. See NFPA Fire Protection Guide for specifics.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

**Reaction Product(s):** Contact with incompatible materials may cause explosion or fire.

## 11. Toxicological Information

**RTECS:** CAS# 64-19-7

**LD50/LC50:** CAS# 64-19-7: Inhalation, mouse: LC50 = 5620 ppm/1H. Oral, rat: LD50 = 3310 mg/kg. Skin, rabbit: LD50 = 1060 mg/kg.

**Carcinogenicity:** CAS# 64-19-7: Not listed as carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

**Epidemiology:** No information available.

**Teratogenicity:** Effects of Newborn: behavioral, orl-rat TDLo = 700 mg/kg.

**Reproductive:** Fertility: male index, itt-rat TDLo = 400 mg/kg.

**Mutagenicity:** No information available.

**Neurotoxicity:** No information available.

## **12. Ecological Information**

**Ecotoxicity:** No information available.

Bluegill (fresh water) TLm = 75 ppm/96H Goldfish (fresh water) TLm = 100 ppm/96H Shrimp (aerated water) LC50 = 100-330 ppm/48H.

**Environmental:** Substance spreads on soil surface and penetrates at rate dependent on soil type and water content. Substance readily degrades in water and shows little potential for bioaccumulation.

**Physical:** No information available

**Other:** None.

## **13. Disposal Considerations**

**Dispose of in a manner consistent with federal, provincial/state/territorial, and local regulations.**

RCRA D-Maximum Concentration of Contaminants: None of the components are on this list.

RCRA D Series – Chronic Toxicity Reference Levels: None of the components are on this list.

RCRA F Series Wastes: None of the components are on this list.

RCRA P Series Wastes: None of the components are on this list.

RCRA U Series Wastes: None of the components are on this list.

RCRA Substances Banned from Land Disposal: None of the components are on this list.

## **14. Transport Information**

Proper Shipping Name: ACETIC ACID, GLACIAL; or ACETIC ACID SOLUTION, more than 80 percent acid, by mass

Hazard Class: 8 (3) UN Number: UN2789 Packing Group: II

## **15. Regulatory Information**

### **US Federal**

**TSCA:** CAS# 64-19-7 is listed on the TSCA Inventory.

**Health and Safety Reporting List:** None of the components are on this list.

**Chemical Test Rules:** None of the components are on this list.



**TSCA Section 12b:** None of the components are on this list.

**TSCA Significant New Use Rule (SNUR):** None of the components are on this list.

**CERCLA Reportable Quantities (RQ):** CAS# 64-19-7: final RQ = 5000 pounds (2270 kg).

**SARA Threshold Planning Quantities (TPQ):** None of the components are on this list.

**SARA Hazard Categories:** CAS# 64-19-7: acute, chronic, flammable.

**SARA Section 313:** None of the components are on this list.

**Clean Air Act – Hazardous Air Pollutants (HAPs):** None of the components are on this list.

**Clean Air Act – Class 1 Ozone Depletors:** None of the components are on this list.

**Clean Air Act – Class 2 Ozone Depletors:** None of the components are on this list.

**Clean Water Act – Hazardous Substances:** CAS# 64-19-7 is listed as a Hazardous Substance under the CWA.

**Clean Water Act – Priority Pollutants:** None of the components are on this list.

**Clean Water Act – Toxic Pollutants:** None of the components are on this list.

**OSHA – Highly Hazardous:** None of the components are on this list.

### **European/International Regulations**

European Labelling in Accordance with EC Directives:

Hazard Symbols: C

Risk Phrases: R 35 Causes severe burns.

Safety Phrases: S 23 Do not inhale gas/fumes/vapour/spray.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**WGK (Water Danger/Protection):** No information available.

### **16. Other Information**

The statements contained herein this material data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is up to the user / manufacturer/ seller to ensure that the information contained in the material safety data sheet is relevant to the product

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