

Safety Data Sheet

Glacial Acetic Acid, C₂H₄O₂- Glac Aci Acid

Document No. M-D6-011

Section I – Product and Company Identification

Synonym: Acetic acid; Ethanoic acid; Ethylic acid;
Glacial acetic acid; Methanecarboxylic acid; Vinegar
acid

CAS No.: 64-19-7

Molecular Weight: 60.05

Chemical Formula: CH₃COOH

Product Code: C₂H₄O₂

For information, call:

1-403-207-6034

Emergency Number:

1-403-207-6034

Section II – Hazards Identification

Appearance: Colorless liquid

Physical State: Liquid

Odor: vinegar odor

Hazards of Product: Corrosive, flammable liquid and vapor. Causes severe digestive and respiratory tract burns. Causes severe eye and skin burns. May be harmful if absorbed through the skin. Acetic acid forms ice-like solid below 17°C (62°F).

Potential Health Hazards

Eye: Causes severe eye irritation. Contact with liquid or vapor causes severe burns and possible irreversible eye damage.

Skin: Causes skin burns. May be harmful if absorbed through the skin. Contact with the skin may cause blackening and hyperkeratosis of the skin of the hands.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes severe pain, nausea, vomiting, diarrhea, and shock. May cause polyuria, oliguria and anuria. Rapidly absorbed from the gastrointestinal tract.

Inhalation: Effects may be delayed. Causes chemical burns to the respiratory tract. Exposure may lead to bronchitis, pharyngitis, and dental erosion. May be absorbed through the lungs.

Chronic: Chronic exposure to acetic acid may cause erosion of dental enamel, bronchitis, eye irritation, darkening of the skin, and chronic inflammation of the respiratory tract. Acetic acid can cause occupational asthma. One case of a delayed asthmatic response to glacial acetic acid has been reported in a person with bronchial asthma. Skin sensitization to acetic acid is rare, but has occurred.

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.

Section III – Composition/Information on Ingredients

Ingredient Name	Chemical Formula	CAS No.	% by weight
Acetic acid	CH ₃ COOH	64-19-7	100%

Toxicological Data on Ingredients: Acetic acid: ORAL (LD50): Acute: 3310 mg/kg [Rat]. 4960 mg/kg [Mouse]. 3530 mg/kg [Rat]. DERMAL (LD50): Acute: 1060 mg/kg [Rabbit]. VAPOR (LC50): Acute: 5620 ppm 1 hours [Mouse].

Section IV – First Aid Measures

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Section V – Fire Fighting Measures

Conditions of flammability:	Flammable
Means of extinction:	Not available
Flash point and method of determination:	CLOSED CUP: 39°C (102.2°F). OPEN CUP: 43°C (109.4°F).
Upper flammable limit:	19.9%
Lower flammable limit:	4%
Auto-ignition temperature:	463°C (865.4°F)
Hazardous combustion products:	These products are carbon oxides (CO, CO ₂).
Explosion data - sensitivity to mechanical impact:	Not available
Explosion data - sensitivity to static discharge:	Not available
Fire Fighting Media and Instructions:	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special Remarks on Fire Hazards:	Reacts with metals to produces flammable hydrogen gas. It will ignite on contact with potassium-tert-butoxide. A mixture of ammonium nitrate and acetic acid ignites when warmed, especially if warmed.
Special Remarks on Explosion Hazards:	Acetic acid vapors may form explosive mixtures with air. Reactions between acetic acid and the following materials are potentially explosive: 5-azidotetrazole, bromine pentafluoride, chromium trioxide, hydrogen peroxide, potassium permanganate, sodium peroxide, and phosphorus trichloride. Dilute acetic acid and dilute hydrogen can undergo an exothermic reaction if heated, forming peracetic acid which is explosive at 110 degrees C. Reaction between chlorine trifluoride and acetic acid is very violent, sometimes explosive.

Section VI – Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill: Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate.

Section VII – Handling and Storage

Handling Procedures: Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis.

Storage Requirements: Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section VIII – Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Eyewear: Splash goggles

Gloves: Gloves

Clothing: Synthetic apron

Respirator: Vapor respirator

Exposure Limits: TWA: 10 STEL: 15 (ppm) [Australia] TWA: 25 STEL: 27 (mg/m³) [Australia] TWA: 10 STEL: 15 (ppm) from NIOSH TWA: 25 STEL: 37 (mg/m³) from NIOSH TWA: 10 STEL: 15 (ppm) [Canada] TWA: 26 STEL: 39 (mg/m³) [Canada] TWA: 25 STEL: 37 (mg/m³) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 25 (mg/m³) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section IX – Physical and Chemical Properties

Physical state: Liquid

Odour and appearance: Pungent, vinegar-like, strong sour

Odour threshold: Not available

Specific gravity: 1.049 (Water = 1)

Vapour pressure: 1.5 kPa (@ 20°C)

Vapour density: 2.07 (Air = 1)

Evaporation rate: Not available

Boiling point: 118.1°C (244.6°F)

Freezing point: 16.6°C (61.9°F)

pH (1% soln/water): 2

Coefficient of water/oil distribution: The product is more soluble in water; log (oil/water) = -0.2

Taste: Vinegar, sour (Strong.)

Critical Temperature: 321.67°C (611°F)

Dispersion Properties: See solubility in water, diethyl ether, and acetone.

Solubility: Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone. Miscible with Glycerol, alcohol, Benzene, Carbon Tetrachloride. Practically insoluble in Carbon Disulfide.

Section X – Stability and Reactivity

Stability: Stable

Conditions to avoid: Heat, ignition sources, incompatible materials

Incompatible materials: Reactive with oxidizing agents, reducing agents, metals, acids, alkalis.

Conditions of reactivity: Reacts violently with strong oxidizing agents, acetaldehyde, and acetic anhydride. Material can react with metals, strong bases, amines, carbonates, hydroxides, phosphates, many oxides, cyanides, sulfides, chromic acid, nitric acid, hydrogen peroxide, carbonates. Ammonium nitrate, ammonium thiosulfate, chlorine trifluoride, chlorosulfonic acid, perchloric acid, permanganates, xylene, oleum, potassium hydroxide, sodium hydroxide, phosphorus isocyanate, ethylenediamine, ethylene imine.

Hazardous decomposition products: Carbon dioxide and carbon monoxide may form when heated to decomposition. May also release toxic and irritating vapours.

Corrosivity: Highly corrosive in presence of stainless steel (304). Slightly corrosive in presence of aluminum, of copper. Non-corrosive in presence of stainless steel (316).

Special Remarks on Corrosivity: Moderate corrosive effect on bronze. No corrosion data on brass

Polymerization: Will not occur.

Section XI – Toxicological Information

Route of entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Effects of chronic exposure: May affect genetic material and may cause reproductive effects based on animal data. No human data found.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, mucous membranes, skin, and teeth.

Other Toxic Effects on Humans: Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (irritant), of ingestion. Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive).

Irritancy of product: Not available

Sensitization to product: Not available

Carcinogenicity: Not available

Reproductive toxicity: Not available

Teratogenicity: Not available

Mutagenicity: Not available

Toxicologically synergistic products:

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3310 mg/kg [Rat]. Acute dermal toxicity (LD50): 1060 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5620 1 hours [Mouse].

Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects: Skin: Extremely irritating and corrosive. Causes skin irritation (reddening and itching, inflammation). May cause blistering, tissue damage and burns. Eyes: Extremely irritating and corrosive. Causes eye irritation, lacrimation, redness, and pain. May cause burns, blurred vision, conjunctivitis, conjunctival and corneal destruction and permanent injury. Inhalation: Causes severe respiratory tract irritation. Affects the sense organs (nose, ear, eye, taste), and blood. May cause chemical pneumonitis, bronchitis, and pulmonary edema. Severe exposure may result in lung tissue damage and corrosion (ulceration) of the mucous membranes. Inhalation may also cause rhinitis, sneezing, coughing, oppressive feeling in the chest or chest pain, dyspnea, wheezing, tachypnea, cyanosis, salivation, nausea, giddiness, muscular weakness. Ingestion: Moderately toxic. Corrosive. Causes gastrointestinal tract irritation (burning and pain of the mouth, throat, and abdomen, coughing, ulceration, bleeding, nausea, abdominal spasms, vomiting, hematemesis, diarrhea. May Also affect the liver (impaired liver function), behavior (convulsions, giddiness, muscular weakness), and the urinary system - kidneys (Hematuria, Albuminuria, Nephrosis, acute renal failure, acute tubular necrosis). May also cause dyspnea or asphyxia. May also lead to shock, coma and death. Chronic Potential Health Effects: Chronic exposure via ingestion may cause blackening or erosion of the teeth and jaw necrosis, pharyngitis, and gastritis. It may also behavior (similar to acute ingestion), and metabolism (weight loss). Chronic exposure via inhalation may cause asthma and/or bronchitis with cough, phlegm, and/or shortness of breath. It may also affect the blood (decreased leukocyte count), and urinary system (kidneys). Repeated or prolonged skin contact may cause thickening, blackening, and cracking of the skin.

Section XII – Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 423 mg/l 24 hours [Fish (Goldfish)]. 88 ppm 96 hours [Fish (fathead minnow)]. 75 ppm 96 hours [Fish (bluegill sunfish)]. >100 ppm 96 hours [Daphnia].

BOD5 and COD: BOD-5: 0.34-0.88 g oxygen/g

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section XIII – Disposal Considerations

Waste disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section XIV – Transport Information

Special shipping information: UN2789 II

Transport of Dangerous Goods (TDG): ACETIC ACID GLACIAL

Department of Transportation (DOT): CLASS 8(3): Corrosive material; Flammable liquid.

International Maritime Dangerous Goods (IMO): None

International Civil Aviation Organization (ICAO): None

Section XV – Regulatory Information

WHIMIS classification: CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS E: Corrosive liquid.

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

SERA: Not available

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

Section XVI – Other Information

SDS creation date: Mar 10, 2000

Last revision date: Jan 11, 2016

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall The Chemical Supply be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if The Chemical Supply has been advised of the possibility of such damages.

***This product has been classified in accordance with the hazard criteria of the CPR
and the SDS contains all of the information required by the CPR***