

## ACETIC ACID, GLACIAL

### SECTION 1: PRODUCT IDENTIFICATION

**Product Name:** ACETIC ACID  
**Product Code:** 569  
**CAS#:** 64197  
**CI#:** Not available  
**Synonym:** Acetasol, Glacial Acetic Acid  
**Chemical Name:** Acetic Acid, Glacial  
**Chemical Formula:** CH<sub>3</sub>-COOH  
**Molecular Weight:** 60.05

### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

**Composition:**

**Name:** ACETIC ACID

**Toxicological Data on Ingredients:** This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard

(29 CFR 1910.1200):

H314: Causes severe skin burns and eye damage.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H314: Causes severe skin burns and eye damage.

H224: Extremely flammable liquid and vapour

H319: Causes serious eye irritation.

H315: Causes skin irritation.

### SECTION 3: HAZARDS IDENTIFICATION

**Potential Acute Health Effects:** Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation

CARCINOGENIC EFFECTS: Not available

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Not available

DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, mucous membranes, skin, teeth.

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated p. 2 or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

### SECTION 4: FIRST AID MEASURES

**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. WARM water MUST be used. Get medical attention if irritation occurs.

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



**Serious Skin Contact:** Wash with a disinfectant soap and cover the contaminated skin with an antibacterial cream. Seek medical attention.

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

**Serious Inhalation:** Not available.

**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 Ingestion:** Not available

## SECTION 5: FIRE FIGHTING MEASURES

**Flammability of the Product:** Flammable

**Auto-Ignition Temperature:** 463°C (865.4°F)

**Flash Points:** CLOSED CUP: 39°C (102.2°F). OPEN CUP: 43°C (109.4°F)

**Flammable Limits:** LOWER: 4% UPPER: 19.9%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>)

**Fire Hazards in Presence of Various Substances:** Flammable in presence of open flames and sparks, of heat.

Slightly flammable to flammable in presence of oxidizing materials, of metals

**Explosion Hazards in Presence of Various Substances:** Risks of explosion of the product in presence of mechanical impact:

Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of oxidizing materials.

**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 potassiumtertbutoxide. 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: 5azidotetrazole, 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 6: 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 noncombustible material. Do not get water in side 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. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## SECTION 7: HANDLING AND STORAGE

**Precautions:** 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:** Store in a segregated and approved area. Keep container in a cool, wellventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

## SECTION 8: 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 workstation location..

**Personal Protection:** Splash goggles. Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious)

**Personal Protection in Case of a Large Spill:** Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** TWA: 10 STEL: 15 (ppm) [Australia]; TWA: 25 STEL: 27 (mg/m<sup>3</sup>) [Australia]; TWA: 10 STEL: 15 (ppm) From NIOSH; TWA: 25 STEL: 37 (mg/m<sup>3</sup>) from NIOSH; TWA: 10 STEL: 15 (ppm) [Canada]; TWA: 26 STEL: 39 (mg/m<sup>3</sup>) [Canada]; TWA: 25 STEL: 37 (mg/m<sup>3</sup>); TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] [1999]; TWA: 10 (ppm) From OSHA (PEL) [United States]; TWA: 25 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance Form	: Liquid.
Odour	: Pungent, vinegarlike, sour (Strong.)
Taste	: Vinegar, sour (Strong.)
Molecular Weight	: 60.05
Colour	: Colourless
pH	: Acidic
Boiling Point	: 118.1°C (244.6°F)
Melting Point	: 16.6°C (61.9°F)
Critical Temperature	: 321.67°C (611°F)
Specific Density	: 1.049 (Water = 1)
Vapor Pressure	: 1.5 kPa (@ 20°C).
Vapor Density	: 2.07 (Air = 1)
Volatility	: Not Available
Odor Threshold	: 0.48 ppm
Water/Oil Dist. Coeff.	: The product is more soluble in water; log(oil/water) = 0.2
Ionicity (in Water)	: Not Available
Dispersion Properties	: Not Available
Solubility	: Miscible in cold water, hot water

## SECTION 10: STABILITY AND REACTIVITY DATA

**Stability:** The product is stable.

**Instability Temperature:** Not available

**Conditions of Instability:** Heat, ignition sources, incompatible materials



**Incompatibility with various substances:** Reactive with oxidizing agents, reducing agents, metals, acids, alkalis.

**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 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.

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

**Polymerization:** Will not occur

## SECTION 11: TOXICOLOGICAL INFORMATION

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion

**Toxicity to Animals:**

**LD50:** Acute oral toxicity 3310 mg/kg [Rat]

Acute dermal toxicity 1060 mg/kg [Rabbit].

**LC50:** Acute toxicity of the vapor 5620 1 hours [Mouse]

**Chronic Effects on Humans:** MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or

yeast. May cause damage to the following organs: kidneys, mucous membranes, skin, 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)

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** May affect genetic material and may cause reproductive effects based on animal data. No human data found.

**Special Remarks on other Toxic Effects on Humans:** Causes skin irritation (reddening and itching, inflammation). May cause blistering, tissue damage and burns. 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. 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 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 12: ECOLOGICAL INFORMATION

**Eco toxicity:** Not available

**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:** BOD5: 0.340.88 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 13: DISPOSAL CONSIDERATIONS

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

### SECTION 14: TRANSPORT INFORMATION

**DOT Classification:** CLASS 3: Flammable liquid. Class 8: Corrosive material

**Identification:** Acetic Acid, Glacial UNNA: 2789 PG: II

**Special Provisions for Transport:** Not applicable.

### SECTION 15: OTHER REGULATORY INFORMATION

**Federal and State Regulations:** TSCA 8(b) inventory: Acetic acid, glacial

**Other Regulations:** 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.

**Other Classifications:**

**WHMIS (Canada):** CLASS B3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS E: Corrosive liquid

**DSCL (EEC):** R10/ R35

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 2

**Reactivity:** 0

**Personal Protection:** H

**National Fire Protection Association (U.S.A.):**

**Health:** 3

**Flammability:** 2

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:** Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses

### SECTION 16: OTHER INFORMATION

**References:**

H314: Causes severe skin burns and eye damage.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H314: Causes severe skin burns and eye damage.

H224: Extremely flammable liquid and vapour

H319: Causes serious eye irritation.

H315: Causes skin irritation.

**Other Special Considerations:** Not available

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