

SAFETY DATA SHEET



1000 Tedia Way
Fairfield, Ohio 45014
USA
Email: tedia@tedia.com
Web: www.tedia.com

24-Hour Emergency Number (CHEMTREC)

USA: 800-424-9300
International: 703-527-3887

All non-emergency numbers should be directed
to Customer Service at 800-PURITY1

ACETIC ACID GLACIAL

SDS No. M0001

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Acetic Acid Glacial

Synonyms: Acetic acid; Ethanoic acid; Methanecarboxylic acid; Vinegar acid

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION



Classification:

Flammable Liquids: GHS Category 3
Acute Toxicity, Inhalation: GHS Category 4
Acute Toxicity, Dermal: GHS Category 3
Acute Toxicity, Oral: GHS Category 5
Skin Corrosion: GHS Category 1C
Eye Irritation: GHS Category 1

Label Elements

Signal Word: DANGER!

Hazard Statements:

H226 – Flammable liquid and vapor.
H290 – May be corrosive to metals.
H301 – Toxic if swallowed.
H311 – Toxic in contact with skin.
H314 – Causes severe skin burns and eye damage.

Precautionary Statements:

P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P284 – Wear respiratory protection.
P301+P310 – If SWALLOWED: Immediately call a POISON CENTER or a doctor/physician.
P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Clear focus. Consistent results. Complete confidence.

P304+P341 – If inhaled: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

Emergency Overview

May be harmful if absorbed through the skin. Causes severe eye and skin burns. Cause severe digestive and respiratory burns. Flammable liquid and vapor. Acetic acid glacial solidifies below 62°F (17°C). Corrosive to metal. Target Organs: Teeth, eyes, skin, mucous membranes.

HMIS Rating:

Health – 2* Flammability – 2 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Acetic Acid	64-19-7	>99%	Yes

4. FIRST-AID MEASURES

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

Ingestion: Get medical help immediately. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward. If victim is conscious and alert, give a cupful of water. Never give anything by mouth to an unconscious person.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately. Wash clothes before reuse.

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

Notes to Physician: Persons with pre-existing skin disorders or impaired respiratory/pulmonary function may be at increased risk for exposure. Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: Flammable liquid and vapor (GHS Category 3)

Auto-ignition Temperature: 427° C (801° F)

Flash Point: 40° C (104° F)

Flammable Limits: Lower Limit – 5.4 vol %, Upper Limit – 16.0 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Specific Explosion Hazards: Reacts with most metals to form highly flammable hydrogen gas which can form explosive mixtures with the air.

Fire Fighting Media: Use water spray, dry chemical, alcohol-resistant foam, or carbon dioxide

National Fire Protective Association: Health - 3, Flammability - 2, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Use spark-proof tools. Spill may be carefully neutralized with soda ash (sodium carbonate). Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist. Use corrosion-resistant transfer equipment when dispensing. Storage: Keep away from heat, sparks, flames, and contact with oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area. Do not store near alkaline substances. Acetic acid should be kept above its freezing point of 62°F (17°C) to allow it to be handled as a liquid. It will contract slightly on freezing. Freezing and thawing do not affect product quality.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles and face shield for eye and face protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 10 ppm TWA; 15 ppm STEL
NIOSH – 10 ppm TWA; 25 mg/m³ TWA; 50 ppm IDLH
OSHA Final PELs – 10 ppm TWA; 25 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: pungent-vinegar odor

Odor Threshold: 1 ppm

Molecular Formula: C₂H₄O₂

Molecular Weight: 60.05

Auto-ignition Temperature: 427° C (801° F)

Flash Point: 40° C (104° F)

Flammable Limits: Lower Limit – 5.4 vol %, Upper Limit – 16.0 vol %

pH: <.01.

Boiling Point: 117-118° C @ 760 mm Hg

Freezing/Melting Point: 16.6° C

Decomposition Temperature: Not available

Specific Gravity: 1.05 g/cm³

Vapor Density (Air=1): 2.1

Vapor Pressure: 11.4 mm Hg @ 20° C.

Evaporation Rate (Butyl acetate = 1): 0.97

Viscosity: 1.22 cP

Solubility: Soluble

Conductivity (25°C): Conductive; Conductivity = 1.12×10^6 pS/m; Dielectric Constant = 6.15; Relaxation Time Constant = 4.9×10^{-5} seconds

10. STABILITY AND REACTIVITY

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

Conditions to Avoid: Ignition sources, excess heat, freezing temperatures, confined spaces. Note: Use great caution when mixing with water due to heat evolution that causes explosive spattering. Always add acid to water, never the reverse.

Incompatibility With Various Substances: Metals, strong oxidizing agents, bases, chlorine trifluoride, nitric acid, acetaldehyde, chlorosulfonic acid, oleum, bromine pentafluoride, perchloric acid, potassium tert-butoxide, ethyleneimine, 2-aminoethanol, ethylenediamine, phosphorus trichloride, phosphorus isocyanate, chromic acid.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, irritating and toxic fumes and gases.

Hazardous Polymerization: Will not occur..

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

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

INGESTION HAZARD: May cause severe and permanent damage to the digestive tract. Causes severe pain, nausea, vomiting, diarrhea, and shock. May cause excessive urination, diminished urination in relation to fluid intake, and complete suppression of urination. Readily absorbed through the gastrointestinal tract.

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

EYE CONTACT HAZARD: Causes severe eye irritation. Contact with liquid or vapor causes severe burns and possibly irreversible eye damage.

Chronic Exposure Hazards: Chronic exposure to acetic acid may cause dental erosion, 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 from acetic acid is rare but has been reported.

Animal Toxicity:

Draize test, rabbit, skin: 50 mg/24 hr Mild;

Inhalation, mouse: LC50 = 5620 ppm/1 hr;

Oral, rat: LC50 = 3310 mg/kg;

Skin, rabbit: LD50 = 1060 uL/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: No information available.

Teratogenicity: No teratogenic effects were observed among the offspring of mice, rats, or rabbits that had been given very large doses of apple cider vinegar (containing acetic acid) during pregnancy. Acetic acid treatment of suckling rats, via material administration, was associated with abnormalities of behavioral testing.

Reproductive Effects:

Intratesticular, rat: TDLo = 400 mg/kg (male 1 day pre-mating)

Fertility – male fertility index e.g. # males impregnating females per # males fertilizing non-pregnant females).

Mutagenicity:

Sister chromatid exchange, human, lymphocyte = 5 mmol/L;

Unscheduled DNA Synthesis: Administration onto the skin, mouse = 79279 ug/kg;

Cytogenetic Analysis: Hamster, ovary = 10 mmol/L

Neurotoxicity: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fathead minnow: LC50 = 88 mg/L, 96H, static bioassay at 18-22° C;

Fish: Bluegill/sunfish: LC50 = 75 mg/L, 96H, unspecified;

Fish: Goldfish: LC50 = 423 mg/L, 24H, unspecified;

Water: Daphnia: EC50 = 32-47 mg/L, 24-48H, unspecified;

Bacteria: *Phytobacterium phosphoreum*: EC50 = 8.86-11 mg/L, 5-30M, Microtox test

If released water or soil, acetic acid readily biodegrades. Evaporation from dry surfaces is likely to occur. When spilled on soil, the liquid will spread on the surface and penetrate into the soil at a rate dependent on the soil type and its water content. Acetic acid shows no potential for bioaccumulation or food chain contamination.

Environmental Fate: If released to the atmosphere, it is degraded in the vapor phase by reactions with photochemically produced hydroxyl radicals with an estimated half-life of 26.7 days. It occurs in atmospheric particulate matter in acetate form and physical removal from the air can occur via wet and dry deposition.

Physical: Natural waters will neutralize dilute solutions to acetate salts.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is neither a "P" listed nor a "U" listed waste under 40 CFR 261.33.

14. TRANSPORT INFORMATION

US DOT, IAT, IMO

Proper Shipping Name: Acetic Acid Glacial

Hazard Class: 8 (3)

UN Number: UN2789

Packing Group: II

Canada TDG

Additional Information: No information available.

15. REGULATORY INFORMATION

US Federal Regulations:

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

Health and Safety Reporting List: CAS# 64-19-7 is not listed.

Chemical Test Rules: CAS# 64-19-7 is not listed.

Section 12b: Not listed.

TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substances: CAS#64-19-7 – 5000 lb, 2270 kg final RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 64-19-7 – immediate, delayed, fire

Section 313: Acetic Acid (CAS# 64-19-7) is not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

Clean Air Act CAS# 64-19-7 is not listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.

Clean Water Act: CAS# 64-19-7 is listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 64-19-7 is found on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts

California Prop 65: California No Significant Risk Level: Not listed

Canada:

DSL/NDL: CAS# 64-19-7 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of E, B3. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS# 64-19-7 is listed on Canada's Ingredient Disclosure List.

DSCL (EEC):

Hazard Symbols: F, C

Risk Phrases: R10 – Flammable; R35 – Causes severe burns.

Safety Phrases: S23 – Do not inhale gas/vapor/fumes/spray, S26 – In case of contact with eyes, rinse immediately with plenty of water and see medical advice; S45 – In case of accident, or if you feel unwell, seek medical advice immediately (show label where possible).

WGK (Water Danger/protection): CAS# 64-19-7: 1

16. OTHER INFORMATION

Originally Prepared: 5/21/2007

Last Revised: 12/1/2015 – Updated information for eye and face protection in Section 8.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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