

1. PRODUCT NAME: Acetic Acid, Glacial

2. CHEMICAL NAME: Acetic Acid, Glacial

3. SYNONYMS:

4. CAS NUMBER: 64-19-7

5. PROPERTIES: ODOUR & APPEARANCE: clear, colorless,
liquid with a very pungent, penetrating, vinegar odour
ODOUR THRESHOLD: 0.04ppm-0.15ppm
VAPOUR PRESSURE: 11.5mmHg/1.52kPa (20 c)
EVAPORATION RATE (Butyl Acetate-1): 0.97
VAPOUR DENSITY (air=1): 2.1
BOILING RANGE: 102 c
FREEZING POINT: 16 c
SPECIFIC GRAVITY: 1.05 (20/20 C)
WATER SOLUBILITY: complete
IN OTHER SOLVENTS: soluble in acetone and most alcohols, also benzene and diethyl ether
VISCOSITY: 1.2 centipoise (20 c)
PH: 1-highly acid; pH=2.4 (1molar solution, approx 6%)

6. HAZARDS: Acetic Acid - 100%

7. FIRE FIGHTING MEASURES: FLASH POINT: 39 c-43 c (closed cup) – two values given for flash point
AUTOIGNITION TEMPERATURE: 464 c
FLAMMABLE LIMITS: 4%-16%
COMBUSTION PRODUCTS: carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon
FIRE FIGHTING PRECAUTIONS: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water - water jets spreads flames; firefighters must wear SCBA
STATIC DISCHARGE: will not accumulate a static charge
MECHANICAL IMPACT: not sensitive
CHEMICAL STABILITY: stable; will not polymerize
REACTIVE WITH: strong oxidizing agenda; may react violently with alkalies, attack most metals, including stainless steels
DECOMPOSITION PRODUCTS: none apart from Hazardous Combustion products

8. PERSONAL PROTECTION MEASURES: Exposure Control and Personal Protection: HANDS: butyl rubber, “Responder”, “Tychem”, “Saranex” or “Viton”, gloves – other types may also work
EYES: safety glasses with side shields or chemical goggles – a face shield is recommended
RESPIRATOR: not required if ventilation is adequate, or use organic vapour cartridge
CLOTHING: impermeable (hands, above) apron, boots, long sleeves, if splashing is anticipated.

9. FIRST AID PROCEDURES: SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES: Wash eyes immediately with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION: Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim’s head below hips to prevent inhalation of vomited material.

IN CASE OF
TRANSPORT EMERGENCY
CONTACT CHEMTREC
USA: 1-800-424-9300
INTERNATIONAL: 1-703-527-3887



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Seek medical help promptly.

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

10. EXPOSURE TWAEV ppm: 10
LIMITS: LD50 ORAL: 3310
SKIN (mg/kg): 1010
LC50 ppm INHALATION: 5620

11. TOXICOLOGICAL EFFECT OF ACUTE EXPOSURE

INFORMATION: SKIN: CONTACT: severe irritating/corrosive to skin
SKIN ABSORPTION: probably none – cause such severe damage that absorption becomes impossible
EYE CONTACT: severely irritating, may damage eyes
INHALATION: vapour irritating, causing bronchoconstriction, this may be develop by hours or even days and is usually reversible; may damage lung tissue
INGESTION: severely irritating/corrosive to the digestive tract
EFFECTS OF CHRONIC EXPOSURE
GENERAL: several cases of chronic bronchitis and one case of emphysema have been reported in workers who inhaled acetic acid vapour for many years; continuous exposure of rodents to acetic acid vapour for many weeks affects appetite and lactation
SENSITISING: not a sensitiser, although one case of skin sensitization and one of respiratory sensitization have been reported following many years of exposure to acetic acid
CARCINOGENIC: not a tumorigen not a carcinogen
REPRODUCTIVE EFFECT: no known effect in humans
SYNERGISTIC WITH: not known
ESTIMATED LD50: 3310mg/kg (oral, rat); 1010mg/kg (skin, rabbit)
ESTIMATED LC50: 5620ppm (inhalation, mouse), 6500ppm (inhalation, rat)
NOTE: Acetic acid is a normal component of metabolism in all animals, most microbes, & some plants. As result this substance is only harmful as a consequence of its high concentration. When diluted below 10% it becomes harmless.

12. ECOLOGICAL This product cannot accumulate in living tissue, this product is readily and rapidly biodegradable in the
INFORMATION: presence of oxygen; 82%-88% biodegradation in 10 days in water; half-life in air ~22 days.

13. DISPOSAL DO NOT FLUSH IN SEWER; mix with flammable product and incinerate in approved facility, may be
CONSIDERAIONS: neutralized with sodium carbonate and disposed of in sanitary landfill.

14. CARCINOGENIC Not a tumorigen not a carcinogen.
PROPERTIES &
NOTIFICATIONS:

15. TRANSPORT USA 49 CFR
INFORMATION: Product identification number: UN- 2789
Shipping name: acetic acid, glacial
Classification: class 8; Packing group II
Label: CORROSIVE – 8; FLAMMABLE - 3
WHMIS Class (Canada): B 3, E
HMIS (U.S.A): Health – 3, Fire –2, Reactivity – 0
Material use: mfg. Cellulose acetate, vinyl acetate, pharmaceuticals, acetate esters



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16. **HANDLING & STORAGE:** Store and use away from sources of ignition, heat and oxidizing agents, and alkalies. Keep product as cool as possible to limit formation of corrosive vapour. Use with mechanical exhaust ventilation. All workers in the area should be supplied with "escape" respirators to use in case the ventilation fails. Do not cut, drill, weld or grind on or near this container. Product is corrosive to metals and skin. Avoid prolonged contact with skin and wash work clothes frequently. If there is any danger of splashing, workers must wear face shields. An eye bath and safety shower should be available near the workplace.
17. **ACCIDENTAL RELEASE MEASURES:** LEAK PRECAUTION: Dike to control spillage and prevent environmental contamination
HANDLING SPILL: ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel, & store in closed containers for recycling or disposal.
18. **OTHER INFORMATION** IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): 50ppm
ALLOWABLE TOLERANCE: Residue of acetic acid are exempted from the requirement of a tolerance when used as a catalyst in accordance with good agriculture practiced as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to a tolerance when used as a catalyst (not more than 0.5% of pesticide formulation) in accordance with good agriculture practices as inert (or occasionally active) ingredients in pesticide formulations applied to animals.
OSHA STANDARDS: Permissible Exposure Limit: Table Z-1 8-hr Time weighted avg: 10ppm (21mg/cu m).
NIOSH RECOMMENDATIONS: Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 10ppm (21mg/cu m). Recommended Exposure Limit: 15 min. Short-Term exposure Limit: 15ppm (37mg/cu m).
THRESHOLD LIMITS: 8 hr Time Weighted Avg (TWA): 10 ppm; 15 min Short Term Exposure Limit (STEL): 15ppm
ATMOSPHERIC STANDARDS: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOC-MI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC considering costs, non air quality health and environmental impact and energy requirements. Acetic acid is produced, as an intermediate or final product, by process units covered under this subpart.
CLEAN WATER REQUIREMENTS: Designated as a hazardous substance of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. these regulations apply to discharges of this substance.
CERCLA REPORTABLE QUANTITIES: Persons in charge of vessels of facilities are required to notify the National Response Center (NRC) immediately, when there is release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The toll free number of the NRC is (800) 424-8802; In the Washington D.C metropolitan area (202) 426-2675. The rule for determining when notification is required is stated in 40 CFR 302.4
FIFRA REQUIREMENTS: Residues of acetic acid are exempted from the requirement of a tolerance when used as a catalyst in accordance with good agriculture practices as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Residues of acetic acid are exempted from the requirement of a tolerance when used as a catalyst (not more than 0.5% of pesticide formulation) in accordance with good cultural practices as inert (or occasionally active) ingredients in pesticide formulations applied to animals. As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide registration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for registration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA, as amended in 1988, were divided into three lists based upon potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Acetic acid is found on List D. Case No: 4001; Pesticide



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type: fungicide, antimicrobial; Case Status: RED approved 09/91; OPP has made a decision that some/all uses of the pesticide are eligible for registration, as reflected in a Registration Eligibility Decision (RED) document.; Active ingredient (AI): Acetic acid; Status: The active ingredient is no longer contained in any registered pesticide products..."canceled."

FDA REQUIREMENTS: Substance added to human food affirmed as generally recognized as safe (GRAS). Acetic acid used as a general purpose food additive in animal drugs, feeds and related products is generally recognized as safe when used accordance with good manufacturing or feeding practice.