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Material Safety Data Sheet
Glacial Acetic Acid, AA99

Section 1 - Product Identification

MSDS Name: Glacial Acetic Acid, AA99
Synonyms: Methane carboxylic acid; Acetic acid, 99.9% solution (w/v);
CAS no.: 64-19-7
Molecular Weight: 60.05
Chemical Formula: CH3COOH

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
64-19-7	Acetic Acid	99.9% +/- 1%

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE. FLAMMABLE LIQUID AND VAPOUR.

Potential Health Effects
Hazard evaluation based upon pure (glacial) acetic acid. Hazards of dilute solutions may not be as severe as those of glacial acetic acid.
Eye Contact: Eye contact with concentrated solutions may cause severe eye damage followed by loss of sight. Exposure to vapour may cause intense watering and irritation to eyes.
Skin Contact: Contact with concentrated solution may cause serious damage to the skin. Effects may include redness, pain, skin burns. High vapour concentrations may cause skin sensitization.
Ingestion: Swallowing can cause severe injury leading to death. Symptoms include sore throat, vomiting, and diarrhoea. Ingestion of as little as 1.0 mL has resulted in perforation of the oesophagus.
Inhalation: Inhalation of concentrated vapours may cause serious damage to the lining of the nose, throat, and lungs. Breathing difficulties may occur. Neither odour nor degree of irritation is adequate to indicate vapour concentration.
Chronic Exposure: Repeated or prolonged exposures may cause darkening of the skin, erosion of exposed front teeth, and chronic inflammation of the nose, throat, and bronchial tubes.
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 4 - First Aid Measures

Hazard evaluation based upon pure (glacial) acetic acid. Hazards of dilute solutions may not be as severe as those of glacial acetic acid.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.
Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Section 5 - Fire Fighting Measures

Fire:
Flash point: 39○C (102○F)
Auto ignition temperature: 516○C (961○F)
Flammable limits in air % by volume: lel: 4.0; uel: 19.9
Listed fire data is for Glacial Acetic Acid. Flammable Liquid and Vapour!
Explosion:
Above flash point, vapour-air mixtures are explosive within flammable limits noted above. Vapours can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Reacts with most metals to produce hydrogen gas, which can form an explosive mixture with air.
Fire Extinguishing Media: Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool.
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. Water diluted acid can react with metals to form hydrogen gas.

Section 6 - Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Use water spray to dilute spill to a non-flammable mixture. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Use non-sparking tools and equipment. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapours, to protect personnel attempting to stop leak, and to flush spills away from exposures.

Section 7 - Handling and Storage

Protect against physical damage. Store in a cool, dry location, away from any area where the fire hazard may be acute. Separate from incompatibles. Storage and use areas should be No Smoking areas. Store above 17°C (63°F). Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls, Personal Protection Airborne Exposure Limits:

OSHA Permissible Exposure Limit (PEL):
10 ppm (TWA).
-ACGIH Threshold Limit Value (TLV):
10 ppm (TWA); 15 ppm (STEL).
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with organic vapour cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face-piece positive-pressure, air-supplied respirator.
WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.
Skin Protection: Wear impervious protective clothing, including footwear, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Section 9 - Physical and Chemical Properties

Physical data below refers to Acetic Acid Glacial.

Appearance: clear colorless liquid
Odor: Strong vinegar like
Solubility: Infinitely soluble
Density: 1.05
pH: 2.4 (1.0M solution)
% Volatiles by volume @ 21°C (70°C):100

Vapor Pressure (mm Hg): 11@ 20°C (68°F)
Vapor Density(Air=1): 2.1
Evaporation Rate (BuAc=1): 0.97
Melting Point: 16.6°C (63°F)
Boiling Point: 118°C (244°F)

Section 10 - Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.
Conditions to Avoid: Heat, flame, ignition sources, freezing, incompatibles
Incompatibilities with Other Materials: Acetic Acid is incompatible with chromic acid, nitric acid, ethylene glycol, perchloric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, most metals (except aluminum), carbonates, hydroxides, oxides, and phosphates.
Hazardous Decomposition Products: Carbon dioxide and carbon monoxide may form when heated to decomposition. May also release toxic and irritating vapours.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

For Acetic Acid: Oral rat LD50: 3310 mg/kg. Dermal rabbit LD50: 1.06g/Kg. Inhalation mouse LC50: 5620 ppm/1 hr. Investigated as a mutagen, reproductive effector.
Cancer Lists

	NTP Carcinogen---		
Ingredient	**Known**	**Anticipated**	**IARC Category**
Acetic Acid (64-19-7)	No	No	None

Section 12 - Ecological Information

Environmental Fate:
For glacial acetic acid: If released to the atmosphere, it is degraded in the vapour phase by reaction with photo-chemically produced hydroxyl radicals (estimated typical half-life of 26.7 days). If released to water, acetic acid will biodegrade readily. If released to soil, it will biodegrade readily. Acetic acid shows no potential for biological accumulation or food chain contamination. BCF estimated < 1.

Environmental Toxicity:
For glacial acetic acid:
EC50 (wheat fumigation) = 23.3 mg/m^3 /2-hr, effect: leaf injury
LC50 (shrimp) = 100 - 300 mg/L/48-hr
LC50 (fathead minnow) = 88 mg/L/96-hr
This material may be toxic to aquatic life.

Section 13 - Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility. Processing, use or contamination of this product may change the waste management options. Consult your local fire department for disposal regulations. Dispose of container and unused contents in accordance with local requirements.

Section 14 - Transport Information

	Domestic Land D.O.T	**Water, I.M.O**	**Air, I.C.A.O**
Shipping Name:	Glacial Acetic Acid , 99.9% Solution	Glacial Acetic Acid , 99.9% Solution	Glacial Acetic Acid , 99.9% Solution
Hazard Class	8	8	8
UN /NA	UN2790	UN2790	UN2790
Packing Group	III	III	III
Information reported for product/size	200L	200L	200L

Section 15 – Other Information

NFPA Ratings: Health: 3 Flammability: 1 Reactivity: 0
Label Hazard Warning:

POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE. FLAMMABLE LIQUID AND VAPOUR.

Label Precautions:

Do not get in eyes, on skin, or on clothing.
Do not breathe vapour or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Keep away from heat, sparks and flame.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases call physician.

Product Use:

For cleaning haemodialysis equipment.

Section 16 - Additional Information

MSDS Creation Date: 10/03/2000
Revision #2 Date: 07/08/2013

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Review Date: 07/08/ 2016