Safety Data Sheet

Section 01 Identification

Product Identifier	Acetic Acid 50-80% Acetic Acid 50% Acetic Acid 56% Acetic Acid 60% Acetic Acid 80%
Other Means of Identification	Ethanoic acid, methane carboxylic acid, ethylic acid
Product Use and Restrictions on Use	Laboratory reagent, chemical intermediate, solvent.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7 Phone: 800.387.7503 Fax: 888.281.8109 www.cleartech.ca
Prepared By	ClearTech Industries Inc. technical writer
24-Hour Emergency Phone	306.664.2522

Section 02 Hazard Identification

Physical Hazards

Flammable liquid	Category 4

Health Hazards

Skin corrosion / irritation	Category 1B
Serious eye damage / eye irritation	Category 1

Signal Word

Danger

Hazard Statements

H227 Combustible liquid.

H314 Causes severe skin burns and eye damage.

Pictograms

Precautionary Statements

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe vapours, fumes, or mists.

P264 Wash affected body parts thoroughly after handling.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

Response

P301 P330 P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 P361 P353 P363 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse.

P304 P340 P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

P305 P351 P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P403 Store in a well-ventilated place.

P405 Store locked up.

Disposal

P501 Dispose of contents / container in accordance with all federal, provincial and / or local regulations including the Canadian Environmental Protection Act.

Hazards Not Otherwise Classified

Not available

Supplemental Information

Not available

Section 03 Composition / Information on Ingredients

Hazardous Ingredients:

Chemical name	Common name(s)	CAS number	Concentration (w/w%)
Acetic Acid	Vinegar	64-19-7	50-80%

Section 04 First-Aid Measures

Description of necessary first-aid measures

Inhalation Eliminate all ignition sources if safe to do so. Remove source of exposure or move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. If breathing has stopped, trained personnel should begin rescue breathing or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth to mouth contact by using a barrier device.

Ingestion Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor. If vomiting occurs naturally, lie on your side, in the recovery position.

Skin contact Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately contaminated clothing, shoes and leather goods. Rinse skin with lukewarm, gently flowing water / shower for 30 minutes. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before re-use, or discard.

Eye contact	Avoid direct contact. Wear chemical protective gloves, if necessary. Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER or doctor.

Most important symptoms and effects, both acute and delayed

Inhalation	Causes severe burns to the mouth and throat (mist).
Ingestion	Causes burns to the mouth and throat.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Further information	For further information see Section 11 Toxicological Information.

Section 05 Fire Fighting Measures

Suitable extinguishing media	Extinguish fire using extinguishing agents suitable for the surrounding fire.
Unsuitable extinguishing media	Water jets are not recommended in fires involving chemicals.
Specific hazards arising from the chemical	Combustible liquid. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. In the event of a fire oxides of carbon may be released.
Special protective equipment for fire-fighters	Wear NIOSH-approved self-contained breathing apparatus and chemical-protective clothing.

Section 06 Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures	Wear appropriate personal protective equipment (See Section 08 Exposure Controls and Personal Protection). Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Stay upwind, ventilate area. Do not breathe vapours, fumes, or mists.
Environmental Precautions	Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes.
Methods and Materials for Containment and Cleaning Up	SMALL SPILLS: Stop or reduce leak if safe to do so. Clean up spill with non-reactive absorbent and place in suitable, covered, labeled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. LARGE SPILLS: Contact fire and emergency services and supplier for advice.

Section 07 Handling and Storage

Precautions for Safe Handling	Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Prevent the release of vapours, fumes, or mists into the workplace air. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Inspect containers for damage or leaks before handling. If the original label is damaged or missing replace with a workplace label. Have suitable emergency equipment for fires, spills and leaks readily available.
Conditions for Safe Storage	Store in a cool, dry, well-ventilated area, away from heat sources and incompatible materials. Always store in original labeled container. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues. Protect label and keep it visible.

Incompatibilities

Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates.
Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates.
Metals, such as iron and mild steel.

Section 08 Exposure Controls and Personal Protection

Exposure limits

Component	Regulation	Type of listing	Value
Acetic acid	ACGIH	TWA	10 ppm (25 mg/m³)
		STEL	15 ppm (37 mg/m³)

Engineering controls

Ventilation Requirements

Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other

An emergency shower and eyewash station should be available, tested, and be in close proximity to the product being handled in accordance with provincial regulations.

Protective equipment

The following are recommendations only. It is the responsibility of the employer / user to conduct a hazard assessment of the process in which this product being used and determine the proper engineering controls and PPE for their process. Additional regulatory and safety information should be sought from local authorities and, if needed, a professional industrial hygienist.

Eye and face protection

Where there is potential eye or face exposure, tightly fitting safety goggles and a face shield or a full face respirator or similar protective equipment which protects the wearer's face and eyes are recommended. Contact lenses are not recommended; they may contribute to severe eye injury.

Hand and body protection

Disposable latex or nitrile gloves are recommended to prevent incidental contact. Butyl rubber, neoprene, or PVC skin protection is recommended for extended contact. Leather gloves are not recommended for chemical protection. Refer to manufacturer's specifications for breakthrough times and permeability information; note that breakthrough times and permeability vary with temperature, application and age of material. Continued use of contaminated safety gear or clothing is not recommended; wash before reuse or discard.

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment.

NIOSH respirator recommendations for: Acetic acid

Up to: 50 ppm
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)
(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor cartridge(s)
(APF = 50) Any self-contained breathing apparatus with a full facepiece.
(APF = 50) Any supplied-air respirator with a full facepiece

	Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus **Escape:** (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor cartridge(s) Any appropriate escape-type, self-contained breathing apparatus
Thermal hazards	Not available

Section 09 Physical and Chemical Properties

Appearance

Physical state	Liquid
Colour	Colourless
Odour	Strong vinegar-like
Odour threshold	0.21-1.0 ppm

Property

pH	2.5 @ 50 g/L
Melting point / freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability	Not applicable
Upper flammable limit	19.9%
Lower flammable limit	4%
Vapour pressure	20.6 hPa (15.6 mm Hg) @ 25 °C
Vapour density	2.07
Relative density	Not applicable
Solubility	Soluble in water
Partition coefficient: n-octanol/water	-0.17
Auto-ignition temperature	463 °C
Decomposition temperature	Not available
Viscosity	Not available
Specific gravity	~1.05 g/mL @ 20 °C
Particle characteristics	Not applicable
Formula	CH_3COOH
Molecular weight	60.05 g/mol

Section 10 Stability and Reactivity

Reactivity	Combustible liquid. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. Reacts violently with bases.
Stability	This product is stable if stored according to the recommendations in Section 07.
Possibility of hazardous reactions	Hazardous polymerization is not known to occur.
Conditions to avoid	Avoid contact with incompatible materials. Do not heat.
Incompatible materials	Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates. Metals, such as iron and mild steel.
Hazardous decomposition products	Thermal decomposition may produce oxides of carbon.

Section 11 Toxicological Information

Acute Toxicity (LD50 / LC50 values)

Component	Route	Species	Value	Exposure time
Acetic acid, sodium salt	Oral	Rat	3310 mg/kg bw	
Acetic acid	Inhalation	Rat	>40 mg/L	4 hours

Toxic Health Effect Summary

Chemical characteristics	Acetic acid is readily absorbed via inhalation, ingestion, and dermally. The primary toxic affect is on body pH. Acetate is readily metabolised in the body.
Skin	Causes severe skin burns.
Ingestion	Causes burns to the mouth and throat.
Inhalation	Causes severe burns to the mouth and throat (mist).
Eye contact	Causes serious eye damage.
Sensitization	This product and its components at their listed concentration have no known sensitizing effects.
Mutagenicity	This product and its components at their listed concentration have no known mutagenic effects.
Carcinogenicity	This product and its components at their listed concentration have no known carcinogenic effects.
Reproductive toxicity	This product and its components at their listed concentration have no known reproductive effects.
Specific organ toxicity	This product and its components at their listed concentration have no known effects on specific organs.
Aspiration hazard	Not available
Synergistic materials	Not available

Section 12 Ecological Information

Ecotoxicity

Component	Type	Species	Value	Exposure Time
Estimate from potassium acetate	LC50	Fish (freshwater and marine)	>300 mg/L	96 hours
	EC50	Aquatic invertabrates	>300 mg/L	48 hours
	EC50	Marine algae	>300 mg/L	72 hours

Biodegradability The domestic substance list categorizes acetic acid as non-persistent.

Bioaccumulation The domestic substance list categorizes acetic acid as non-bioaccumulative.

Mobility This product is water soluble, is not predicted to adsorb to soil and may contaminate ground water.

Other adverse effects Not available

Section 13 Disposal Considerations

Waste From Residues / Unused Products Dispose in accordance with all federal, provincial, and local regulations including the Canadian Environmental Protection Act.

Contaminated Packaging Do not remove label, follow label warnings even after the container is empty. Empty containers should be recycled or disposed of at an approved waste handling facility.

Section 14 Transport Information

UN number UN2790

UN proper shipping name and description ACETIC ACID, SOLUTION
not less than 50% but not more than 80% acid, by mass

Transport hazard class(es) 8

Packing group II

Excepted quantities 1 L

Environmental hazards Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.

Special precautions No special precautions

Transport in bulk ERAP index: Not available

MARPOL 73/78 and IBC Code:

Product name:	Acetic acid	
Pollution category:	Z	
Hazards:	the product is included in the Code because of both its safety and pollution hazards.	
Ship type:	ship type	
Tank type:	integral gravity tank	
Tank vents:	controlled venting	
Tank environmental control:	no special requirements under this Code	
Electrical equipment:	Temperature classes	T1
	Apparatus group	IIA
	Flash point	flashpoint not exceeding 60 °C
Gauging:	restricted gauging	
Vapour detection:	flammable vapours	
Fire protection:	alcohol-resistant foam or multi-purpose foam	

	Emergency equipment see 14.3.1
	Specific and operational requirements See 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9
Additional information	Secure containers (full or empty) during shipment and ensure all caps, valves, or closures are secured in the closed position.

TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 16 of this SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and published test data regarding the classification of this product are listed in the references at section 16 of this SDS.

Section 15 Regulatory Information.

NOTE: THE PRODUCT LISTED ON THIS SAFETY DATA SHEET HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN HAZARDOUS PRODUCTS REGULATIONS. THIS SAFETY DATA SHEET CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

All components of this product appear on the domestic substance list.

Section 16 Other Information

Date of latest revision: May 09, 2023

Note: The responsibility to provide a safe workplace remains with the buyer / user. The buyer / user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the buyer / user to comply with all applicable laws and regulations regarding handling, using, reselling and shipping this product.

Attention: Receiver of the chemical goods / SDS coordinator

As part of our commitment to the RDC Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

1) *NIOSH Pocket Guide to Chemical Hazards;* U.S. Department of Health and Human Services, https://www.cdc.gov/niosh/npg/default.html
2) *WorkSafe BC E-Limit;* Workers' Compensation Foard of British Columbia, https://elimit.online.worksafebc.com/
3) *ECHA - Registered Substance Dossier;* European Chemicals Agency, https://echa.europa.eu/registration-dossier/-/registered-dossier/15549
4) *Transportation of Dangerous Goods Regulations;* Transport Canada, https://laws-lois.justice.gc.ca/eng/regulations/SOR-2001-286/index.html
5) Globally Harmonized System of Classification and Labeling of Chemicals (GHS) *Seventh revised edition*
6) International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) 2007 Edition
7) The ACS Style Guide