Material Safety Data Sheet

Version 3.5
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acetic acid

Product Number : 242853
Brand : Sigma-Aldrich

Company : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA
Telephone : +19058299500
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Emergency Phone # : 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Glacial acetic acid

Formula : $C_2H_4O_2$
Molecular Weight : 60.05 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Acetic acid			
64-19-7	200-580-7	607-002-00-6	-

3. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Teeth., Kidney

WHMIS Classification

B3 Combustible Liquid
E

Combustible Liquid
Corrosive

HMIS Classification

Health Hazard: 3
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin Harmful if absorbed through skin. Causes skin burns.

Eyes	Causes eye burns.
Ingestion	May be harmful if swallowed. Causes burns.

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Continue rinsing eyes during transport to hospital.Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point	40.0 °C (104.0 °F) - closed cup
Ignition temperature	485 °C (905 °F)

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Do not let product enter drains.

Methods for cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Moisture sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Acetic acid	64-19-7	TWA	10 ppm	2006-11-29	Canada. British Columbia OEL
		STEL	15 ppm	2006-11-29	Canada. British Columbia OEL
		TWAEV	10 ppm 25 mg/m3	2005-12-17	Canada. Ontario OELs
		STEV	15 ppm 37 mg/m3	2005-12-17	Canada. Ontario OELs
		TWA	10 ppm 25 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required				
		STEL	15 ppm 37 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required				
		TWAEV	10 ppm 25 mg/m3	2006-12-29	Canada. Quebec OELs
		STEV	15 ppm 37 mg/m3	2006-12-29	Canada. Quebec OELs

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work

place.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	colourless
Odour	pungent

Safety data

pH	2.4 at 60.05 g/l
Melting point	16.2 °C (61.2 °F)
Boiling point	117 - 118 °C (243 - 244 °F)
Flash point	40.0 °C (104.0 °F) - closed cup
Ignition temperature	485 °C (905 °F)
Lower explosion limit	4 %(V)
Upper explosion limit	19.9 %(V)
Vapour pressure	73.3 hPa (55.0 mmHg) at 50.0 °C (122.0 °F) 15.2 hPa (11.4 mmHg) at 20.0 °C (68.0 °F)
Density	1.049 g/mL at 25 °C (77 °F)
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: -0.17

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Oxidizing agents, Soluble carbonates and phosphates, Hydroxides, Metals, Peroxides, permanganates, e.g. potassium permanganate, Amines, Alcohols

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Hazardous reactions
Vapours may form explosive mixture with air.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 3,310 mg/kg

LC50 Inhalation - mouse - 1 h - 5620 ppm
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Conjunctive irritation. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Blood:Other changes.

LC50 Inhalation - rat - 4 h - 11.4 mg/l

LD50 Dermal - rabbit - 1,112 mg/kg

Irritation and corrosion

Skin - rabbit - Mild skin irritation - 24 h

Eyes - rabbit - Corrosive to eyes

Sensitisation

May cause sensitization by skin contact.

Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Ingestion or inhalation of concentrated acetic acid causes damage to tissues of the respiratory and digestive tracts. Symptoms include: hematemesis, bloody diarrhea, edema and/or perforation of the esophagus and pylorus, pancreatitis, hematuria, anuria, uremia, albuminuria, hemolysis, convulsions, bronchitis, pulmonary edema, pneumonia, cardiovascular collapse, shock, and death. Direct contact or exposure to high concentrations of vapor with skin or eyes can cause: erythema, blisters, tissue destruction with slow healing, skin blackening, hyperkeratosis, fissures, corneal erosion, opacification, iritis, conjunctivitis, and possible blindness., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	Harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.
Ingestion	May be harmful if swallowed. Causes burns.
Target Organs	Teeth., Kidney,

Additional Information
RTECS: AF1225000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability	Remarks: Expected to be biodegradable

Ecotoxicity effects

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 410.00 mg/l - 48 h
	LC50 - Cyprinus carpio (Carp) - 49.00 mg/l - 48 h
	LC50 - Pimephales promelas (fathead minnow) - 79.00 - 88.00 mg/l - 96 h
	LC50 - Lepomis macrochirus - 75 mg/l - 96 h
Toxicity to daphnia and other aquatic	EC50 - Daphnia magna (Water flea) - 65.00 mg/l - 48 h

invertebrates.

Toxicity to algae EC50 - No information available. - 156.00 mg/l - 24 h

Further information on ecology

Biochemical Oxygen Demand (BOD) 880 mg/g

Additional ecological information no data available

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2789 Class: 8 (3) Packing group: II
Proper shipping name: Acetic acid, glacial
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2789 Class: 8 (3) Packing group: II EMS-No: F-E, S-C
Proper shipping name: ACETIC ACID, GLACIAL
Marine pollutant: No

IATA
UN-Number: 2789 Class: 8 (3) Packing group: II
Proper shipping name: Acetic acid, glacial

15. REGULATORY INFORMATION

DSL Status
All components of this product are on the Canadian DSL list.

WHMIS Classification

B3	Combustible Liquid	Combustible Liquid
E		Corrosive

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.