

SIGMA-ALDRICH

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Material Safety Data Sheet

Version 4.0
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acetic acid
Product Number : A6283
Brand : Sigma-Aldrich
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Combustible Liquid, Target Organ Effect, Harmful by skin absorption., Corrosive

Target Organs

Teeth., KidneyTeeth., Kidney

GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H226 : Flammable liquid and vapour.
H303 : May be harmful if swallowed.
H312 : Harmful in contact with skin.
H314 : Causes severe skin burns and eye damage.
H317 : May cause an allergic skin reaction.
H331 : Toxic if inhaled.
H402 : Harmful to aquatic life.

Precautionary statement(s)

P261 : Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 : Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 : Immediately call a POISON CENTER or doctor/physician.

HMIS Classification

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

NFPA Rating

Health hazard: 3
Fire: 2
Reactivity Hazard: 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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Glacial acetic acid
Formula : C₂H₄O₂
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	-

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

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 and materials for containment and 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.

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7. HANDLING AND STORAGE

Precautions for safe 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.

Conditions for safe 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	2007-01-01	USA, ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract Irritation Pulmonary function				
		STEL	15 ppm	2007-01-01	USA, ACGIH Threshold Limit Values (TLV)
	Eye & Upper Respiratory Tract Irritation Pulmonary function				
		TWA	10 ppm	1989-01-19	USA, OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	25 mg/m3	1997-08-04	USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.				

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

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

Chemical stability
 Stable under recommended storage conditions.

Possibility of hazardous reactions
 Vapours may form explosive mixture with air.

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity
 LD50 Oral - rat - 3,310 mg/kg

LC50 Inhalation - mouse - 1 h - 5520 ppm

Remains: 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:Other changes.

LD50 Dermal - rabbit - 1,112 mg/kg

Skin corrosion/irritation

Skin - rabbit - Mild skin irritation - 24 h

Serious eye damage/eye irritation

Eyes - rabbit - Corrosive to eyes

Respiratory or skin sensitization

May cause sensitization by skin contact.

Germ cell mutagenicity

no data available

Carcinogenicity

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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)

no data available

Specific target organ toxicity - repeated exposure (GHS)

no data available

Aspiration hazard

no data available

Potential health effects

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

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.

Additional information

RTECS: AF1225000

12. ECOLOGICAL INFORMATION

Toxicity

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 invertebrates. EC50 - Daphnia magna (Water flea) - 65.00 mg/l - 48 h

Persistence and degradability

Biodegradability Remarks: Expected to be biodegradable

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

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
Reportable Quantity (RQ): 5000 lbs
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

OSHA Hazards

Combustible Liquid, Target Organ Effect, Harmful by skin absorption., Corrosive

DSL Status

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

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Component	CAS-No.	Revision Date
Acetic acid	64-19-7	2007-03-01

Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
Acetic acid	64-19-7	2007-03-01

New Jersey Right To Know Components

Component	CAS-No.	Revision Date
Acetic acid	64-19-7	2007-03-01

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further Information
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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.