

Material Safety Data Sheet

Version 3.2
Revision Date 11/19/2007
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acetic acid

Product Number : 242853
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. COMPOSITION/INFORMATION ON INGREDIENTS

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 | - |

3. HAZARDS IDENTIFICATION**Emergency Overview****OSHA Hazards**

Combustible Liquid
Target Organ Effect
Harmful by skin absorption.
Corrosive

Target Organs

Teeth., Kidney

HMIS Classification

Health Hazard: 3
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 1

NFPA Rating

Health Hazard: 3
Fire : 2
Reactivity Hazard: 1

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.

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 25 mg/m ³ | 1994-09-01 | US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) |
| | | STEL | 15 ppm 37 mg/m ³ | 1994-09-01 | US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) |
| | | TWA | 10 ppm 25 mg/m ³ | 1989-03-01 | US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A |
| | | TWA | 10 ppm 25 mg/m ³ | 1993-06-30 | US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants. |

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

Safety glasses

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 | 117.0 - 118.0 °C (242.6 - 244.4 °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 | 1.05 g/cm ³ |
| 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.

LD50 Dermal - rabbit - 1,112 mg/kg

Irritation and corrosion

Skin - rabbit - Mild skin irritation - 24 h

Sensitisation

no data available

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.

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.

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, |

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

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 |
| Toxicity to daphnia and other aquatic invertebrates. | EC50 - Daphnia magna (Water flea) - 65.00 mg/l - 48 h |

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

Further information on ecology

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

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

TSCA Status

On TSCA Inventory

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

| | CAS-No. | Revision Date |
|-------------|---------|---------------|
| Acetic acid | 64-19-7 | 1989-12-01 |

Pennsylvania Right To Know Components

| | CAS-No. | Revision Date |
|-------------|---------|---------------|
| Acetic acid | 64-19-7 | 1989-12-01 |

New Jersey Right To Know Components

| | CAS-No. | Revision Date |
|-------------|---------|---------------|
| Acetic acid | 64-19-7 | 1989-12-01 |

California Prop. 65 Components

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

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.