

MATERIAL SAFETY DATA SHEET

Date Printed: 01/22/2004

Date Updated: 02/10/2003

Version 1.8

Section 1 - Product and Company Information

Product Name ACETIC ACID, 99.8%
Product Number 109088
Brand ALDRICH

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
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Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313 No
ACETIC ACID	64-19-7	

Formula C2H4O2
Synonyms Acetic acid (ACGIH:OSHA) * Acetic acid, glacial *
Acide acetique (French) * Acido acetico (Italian) *
* Azijnzuur (Dutch) * Essigsaeure (German) *
Ethanoic acid * Ethylic acid * Glacial acetic acid *
Kyselina octova (Czech) *
Methanecarboxylic acid * Octowy kwas (Polish) *
Vinegar acid

RTECS Number: AF1225000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Combustible (USA) Flammable (EU). Corrosive.
Causes severe burns. Harmful in contact with skin.
Lachrymator. Target organ(s): Teeth. Kidneys.

HMIS RATING

HEALTH: 3*
FLAMMABILITY: 2
REACTIVITY: 0

NFPA RATING

HEALTH: 3
FLAMMABILITY: 2
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is

conscious. Call a physician. Do not induce vomiting.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

104 °F 40 °C Method: closed cup

EXPLOSION LIMITS

Lower: 4 % Upper: 19.9 %

AUTOIGNITION TEMP

427 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

Upper: 19.9 %
Flammability N/A
Autoignition Temp 427 °C
Refractive Index 1.3715
Optical Rotation N/A
Miscellaneous Data N/A
Solubility Solubility in Water: Miscible.
Other Solvents: MISCIBLE WITH ALCOHOL,
ETHER GLYCEROL, ACETONE, BEN

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Protect from moisture.

Materials to Avoid: Oxidizing agents, Soluble carbonates and phosphates, Hydroxides, Oxides, Metals, Peroxides, Permanganates, Amines, Alcohols.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Harmful if absorbed through skin.

Eye Contact: Causes burns.

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.

TARGET ORGAN(S) OR SYSTEM(S)

Teeth. Kidneys.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and 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, 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

CONDITIONS AGGRAVATED BY EXPOSURE

Severe, acute pancreatitis may occur after ingestion of

concentrated acetic acid.

TOXICITY DATA

Oral
Rat
3310 mg/kg
LD50

Inhalation
Mouse
5,620 ppm
LC50

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.

Intravenous
Mouse
525 MG/KG
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.

Skin
Rabbit
1060 UL/KG
LD50

IRRITATION DATA

Skin
Human
50 mg
24H
Remarks: Mild irritation effect

Skin
Rabbit
525 mg
Remarks: Open irritation test

Skin
Rabbit
50 mg
24H
Remarks: Mild irritation effect

Eyes
Rabbit
5 mg
30S
Remarks: Rinsed

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 5 MMOL/L
Cell Type: lymphocyte
Mutation test: Sister chromatid exchange

Species: Mouse

Route: Skin
Dose: 79279 UG/KG
Mutation test: Unscheduled DNA synthesis

Species: Mouse
Route: Skin
Dose: 1201 MG/KG
Mutation test: Other mutation test systems

Species: Hamster
Dose: 10 MMOL/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 700 MG/KG
Route of Application: Oral
Exposure Time: (18D POST)
Result: Effects on Newborn: Behavioral.

Species: Rat
Dose: 400 MG/KG
Route of Application: Intratesticular
Exposure Time: (1D MALE)
Result: Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Algae
Time: 24 h
Value: 156 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 65 mg/l

Test Type: LC50 Fish
Species: Leuciscus idus
Time: 48 h
Value: 410 mg/l

Test Type: LC50 Fish
Species: Cyprinus carpio
Time: 48 h
Value: 49 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 79 - 88 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

This combustible material may be burned in a chemical incinerator

equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Acetic acid, glacial [or] Acetic acid solution, [with more than 80 percent acid, by mass]

UN#: 2789

Class: 8

Packing Group: Packing Group II

Hazard Label: Corrosive

Hazard Label: Flammable liquid

PIH: Not PIH

IATA

Proper Shipping Name: Acetic acid, glacial

IATA UN Number: 2789

Hazard Class: 8

Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: C

Indication of Danger: Corrosive.

R: 10 35

Risk Statements: Flammable. Causes severe burns.

S: 26 36/37/39 45

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Combustible (USA) Flammable (EU).

Corrosive.

Risk Statements: Causes severe burns. Harmful in contact with skin.

Safety Statements: Keep away from sources of ignition - no smoking. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

US Statements: Lachrymator. Target organ(s): Teeth. Kidneys.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc., 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. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.