

## Material Safety Data Sheet

Version 3.6

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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acetaldehyde solution

Product Number : W200344

Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

## 2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Flammable liquid, Carcinogen, Target Organ Effect, Irritant

## Target Organs

Nerves., Liver, Heart, Blood, Kidney, Lungs, Cardiovascular system., Central nervous system

## GHS Classification

Flammable liquids (Category 2)

Skin irritation (Category 3)

Eye irritation (Category 2A)

Carcinogenicity (Category 2)

Specific target organ toxicity - single exposure (Category 3), Respiratory system

Acute aquatic toxicity (Category 3)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.

H316 Causes mild skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H402 Harmful to aquatic life.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P281 Use personal protective equipment as required.

P305 + P351 + P338

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

## Other hazards

Lachrymator., Photosensitizer.

## HMIS Classification

Health hazard: 2

Chronic Health Hazard: \*

Flammability: 3

Physical hazards: 2

## NFPA Rating

Health hazard: 2

Fire: 3

Reactivity Hazard: 0

## Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.

Skin May be harmful if absorbed through skin. Causes skin irritation.

Eyes Causes eye irritation.

Ingestion May be harmful if swallowed.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C<sub>2</sub>H<sub>4</sub>O

Molecular Weight : 44.05 g/mol

Component		Classification	Concentration
<b>Ethanol</b>			
CAS-No. EC-No. Index-No.	64-17-5 200-578-6 603-002-00-5	Flam. Liq. 2; H225	50 - 70 %
<b>Acetaldehyde</b>			
CAS-No. EC-No. Index-No.	75-07-0 200-836-8 605-003-00-6	Flam. Liq. 1; Eye Irrit. 2; Carc. 2; STOT SE 3; H224, H319, H335, H351	50 - 70 %

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

## 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

Wash off with soap and plenty of water. Consult a physician.

## In case of eye contact

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. FIREFIGHTING MEASURES

## Conditions of flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

**Further information**

Use water spray to cool unopened containers.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Use personal protective equipment. Avoid breathing vapours, 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**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. 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.

Recommended storage temperature: 2 - 8 °C

Store under inert gas. Handle and open container with care. Air sensitive. Cool to 0°C before opening. Metals

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Ethanol	64-17-5	TWA	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans			
		TWA	1,000 ppm 1,900 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.			
		TWA	1,000 ppm 1,900 mg/m3	USA. NIOSH Recommended Exposure Limits
Acetaldehyde	75-07-0	C	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans			

Potential Occupational Carcinogen See Appendix C See Appendix A			
	TWA	200 ppm 360 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m3 is approximate.			
	STEL	150 ppm 270 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	TWA	100 ppm 180 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

**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. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**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	clear, liquid
Colour	colourless

**Safety data**

pH	no data available
Melting point/freezing point	no data available
Boiling point	61 - 82 °C (142 - 180 °F)
Flash point	-1 °C (30 °F) - closed cup
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	7.39 hPa (5.54 mmHg) at 20 °C (68 °F) 34.52 hPa (25.89 mmHg) at 55 °C (131 °F)
Density	0.882 g/cm3 at 25 °C (77 °F)
Water solubility	no data available

Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

## 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. Extremes of temperature and direct sunlight.

### Materials to avoid

no data available

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

no data available

#### Inhalation LC50

no data available

#### Dermal LD50

no data available

#### Other information on acute toxicity

no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

Eyes: no data available

### Respiratory or skin sensitisation

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Acetaldehyde)

NTP: Reasonably anticipated to be a human carcinogen (Acetaldehyde)

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

Aldrich - W200344  
Delivery 0846635109-000010 Purchase Order PRISM-10R-011414

## Teratogenicity

no data available

### Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

### Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

### Aspiration hazard

no data available

### Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

### Signs and Symptoms of Exposure

Pulmonary edema. Effects may be delayed., Headache, Blurred vision, Unconsciousness

### Synergistic effects

no data available

### Additional Information

RTECS: Not available

## 12. ECOLOGICAL INFORMATION

### Toxicity

no data available

### Persistence and degradability

no data available

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### PBT and vPvB assessment

no data available

### Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

## 13. DISPOSAL CONSIDERATIONS

### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. 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: 1993 Class: 3 Packing group: II  
Proper shipping name: Flammable liquids, n.o.s. (Acetaldehyde, Ethanol)

Aldrich - W200344  
Delivery 0846635109-000010 Purchase Order PRISM-10R-011414

Reportable Quantity (RQ): 2000 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 1993 Class: 3 Packing group: II EMS-No: F-E, S-E  
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Acetaldehyde, Ethanol)  
Marine pollutant: No

**IATA**

UN number: 1993 Class: 3 Packing group: II  
Proper shipping name: Flammable liquid, n.o.s. (Acetaldehyde, Ethanol)

**Further information**

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**15. REGULATORY INFORMATION**

**OSHA Hazards**

Flammable liquid, Carcinogen, Target Organ Effect, Irritant

**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**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Acetaldehyde	75-07-0	2007-07-01

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Ethanol	64-17-5	2007-03-01
Acetaldehyde	75-07-0	2007-07-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Ethanol	64-17-5	2007-03-01
Acetaldehyde	75-07-0	2007-07-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Ethanol	64-17-5	2007-03-01
Acetaldehyde	75-07-0	2007-07-01

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer.	75-07-0	2007-09-28
Acetaldehyde		

**16. OTHER INFORMATION**

**Text of H-code(s) and R-phrases mentioned in Section 3**

Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure