

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acetonitrile

Product Number : 271004  
Brand : Sigma-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, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Irritant

##### Target Organs

Central nervous system, Liver, Kidney, Blood, Lungs

##### GHS Classification

Flammable liquids (Category 2)  
Acute toxicity, Oral (Category 4)  
Acute toxicity, Inhalation (Category 4)  
Acute toxicity, Dermal (Category 4)  
Skin irritation (Category 3)  
Serious eye damage (Category 1)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.  
H302 + H312 Harmful if swallowed or in contact with skin  
H316 Causes mild skin irritation.  
H318 Causes serious eye damage.  
H332 Harmful if inhaled.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P280 Wear protective gloves/ 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.

**HMIS Classification**  
Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 3  
Physical hazards: 0

**NFPA Rating**  
Health hazard: 2  
Fire: 3  
Reactivity Hazard: 0

Health hazard: 2  
Fire: 3  
Reactivity Hazard: 0

**Potential Health Effects**

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

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Methyl cyanide  
ACN

Formula : C<sub>2</sub>H<sub>3</sub>N  
Molecular Weight : 41.05 g/mol

Component	Concentration
<b>Acetonitrile</b>	
CAS-No. 75-05-8	-
EC-No. 200-835-2	
Index-No. 608-001-00-3	
Registration number 01-2119471307-38-XXXX	

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**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.

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**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, nitrogen oxides (NOx)

**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**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**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.

Handle and store under inert gas.

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

Components	CAS-No.	Value	Control parameters	Basis
Acetonitrile	75-05-8	TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Lower Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption			
		TWA	20 ppm 34 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
	Forms cyanide in the body.			
		TWA	40 ppm 70 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m <sup>3</sup> is approximate.			
		TWA	40 ppm 70 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	60 ppm 105 mg/m <sup>3</sup>	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.

#### Immersion protection

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: > 480 min

Material tested: Butoject® (Aldrich Z677647, Size M)

#### Splash protection

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: > 30 min

Material tested: Butoject® (Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Eye protection

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form clear, liquid

Colour colourless

### Safety data

pH no data available

Melting point/freezing point Melting point/range: -48 °C (-54 °F)

Boiling point 81 - 82 °C (178 - 180 °F)

Flash point 2.0 °C (35.6 °F) - closed cup

Ignition temperature 523 °C (973 °F) - Auto-flammability

Autoignition temperature 523.0 °C (973.4 °F)

Lower explosion limit 4.4 %(V)

Upper explosion limit 16 %(V)

Vapour pressure 73.18 hPa (54.89 mmHg) at 15 °C (59 °F)  
119.81 hPa (89.86 mmHg) at 25 °C (77 °F)  
413.23 hPa (309.95 mmHg) at 55 °C (131 °F)

Density 0.786 g/mL at 25 °C (77 °F)

Water solubility	completely soluble
Partition coefficient: n-octanol/water	log Pow: -0.34
Relative vapour density	no data available
Odour	pungent
Odour Threshold	no data available
Evaporation rate	5.8

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## 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

acids, Bases, Oxidizing agents, Reducing agents, Alkali metals

### Hazardous decomposition products

Other decomposition products - no data available

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

LD50 Oral - rat - 2,460 mg/kg

#### Inhalation LC50

LC50 Inhalation - rat - 8 h - 7551 ppm

Remarks: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Convulsions or effect on seizure threshold. Blood: Hemorrhage.

#### Dermal LD50

LD50 Dermal - rabbit - 2,000 mg/kg

#### Other information on acute toxicity

no data available

### Skin corrosion/irritation

Skin - rabbit - Mild skin irritation

### Serious eye damage/eye irritation

Eyes - rabbit - Irritating to eyes.

### Respiratory or skin sensitization

Did not cause sensitization on laboratory animals.

### 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.

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

### 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

<b>Inhalation</b>	May be harmful if inhaled. Causes respiratory tract irritation.
<b>Ingestion</b>	Harmful if swallowed.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

### Signs and Symptoms of Exposure

Treat as cyanide poisoning., Always have on hand a cyanide first-aid kit, together with proper instructions., The onset of symptoms is generally delayed pending conversion to cyanide., Nausea, Vomiting, Diarrhoea, Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness, impaired judgment, Lack of coordination, stupor, death

### Synergistic effects

no data available

### Additional Information

RTECS: AL7700000

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## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 1,640.00 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 3,600.00 mg/l - 48 h

NOEC - Daphnia magna (Water flea) - 640 mg/l - 14 d

### 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

no data available

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## 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: 1648 Class: 3 Packing group: II  
 Proper shipping name: Acetonitrile  
 Reportable Quantity (RQ): 5000 lbs  
 Marine pollutant: No  
 Poison Inhalation Hazard: No

**IMDG**

UN number: 1648 Class: 3 Packing group: II EMS-No: F-E, S-D  
 Proper shipping name: ACETONITRILE  
 Marine pollutant: No

**IATA**

UN number: 1648 Class: 3 Packing group: II  
 Proper shipping name: Acetonitrile

**15. REGULATORY INFORMATION****OSHA Hazards**

Flammable liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., 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
Acetonitrile	75-05-8	2007-07-01

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Acetonitrile	75-05-8	2007-07-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Acetonitrile	75-05-8	2007-07-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Acetonitrile	75-05-8	2007-07-01

**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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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