

## SAFETY DATA SHEET

Version 4.8  
Revision Date 06/18/2014  
Print Date 11/11/2015

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**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Acetonitrile  
  
Product Number : 34998  
Brand : Sigma-Aldrich  
Index-No. : 608-001-00-3  
  
CAS-No. : 75-05-8

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA  
  
Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : (314) 776-6555

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**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 4), H332  
Acute toxicity, Dermal (Category 4), H312  
Eye irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H225  
H302 + H312 + H332  
H319

Highly flammable liquid and vapour.  
Harmful if swallowed, in contact with skin or if inhaled  
Causes serious eye irritation.

Precautionary statement(s)

P210  
P233  
P240  
P241  
P242

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms	: Methyl cyanide ACN
Formula	: C <sub>2</sub> H <sub>3</sub> N
Molecular Weight	: 41.05 g/mol
CAS-No.	: 75-05-8
EC-No.	: 200-835-2
Index-No.	: 608-001-00-3
Registration number	: 01-2119471307-38-XXXX

#### Hazardous components

Component	Classification	Concentration
<b>Acetonitrile</b>	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; H225, H302 + H312 + H332, H319	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of 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.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

no data available

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

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

**5.2 Special hazards arising from the substance or mixture**

no data available

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

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.

For personal protection see section 8.

**6.2 Environmental precautions**

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

**6.3 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).

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 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.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

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.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Component	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

#### Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Acute local effects, Acute systemic effects	68 mg/m <sup>3</sup>
Workers	Skin contact	Long-term systemic effects	32.2mg/kg BW/d
Workers	Inhalation	Long-term local effects, Long-term systemic effects	68 mg/m <sup>3</sup>
Consumers	Inhalation	Acute local effects	220 mg/m <sup>3</sup>
Consumers	Inhalation	Acute systemic effects	22 mg/m <sup>3</sup>
Consumers	Inhalation	Long-term systemic effects	4.8 mg/m <sup>3</sup>

#### Predicted No Effect Concentration (PNEC)

Compartment	Value
Water	10 mg/l
Soil	2.41 mg/kg
Marine water	1 mg/l
Fresh water	10 mg/l
Fresh water sediment	7.53 mg/kg
Onsite sewage treatment plant	32 mg/l

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face 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 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.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact  
Material: butyl-rubber  
Minimum layer thickness: 0.3 mm  
Break through time: 480 min  
Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, 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 and safety officer 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.

### 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.

### 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).

### Control of environmental exposure

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

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|---|--|
| a) Appearance                                   | Form: clear, liquid<br>Colour: colourless  |
| b) Odour  | ether-like   |
| c) Odour Threshold                              | no data available  |
| d) pH   | no data available  |
| e) Melting point/freezing point                 | Melting point/range: -48 °C (-54 °F) - lit.  |
| f) Initial boiling point and boiling range      | 81 - 82 °C (178 - 180 °F) - lit.   |
| g) Flash point                                  | 2.0 °C (35.6 °F) - closed cup  |
| h) Evaporation rate                             | 5.8  |
| i) Flammability (solid, gas)                    | no data available  |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 16 %(V)<br>Lower explosion limit: 3 %(V)  |
| k) Vapour pressure                              | 73.18 hPa (54.89 mmHg) at 15 °C (59 °F)<br>121.44 hPa (91.09 mmHg) at 25 °C (77 °F)<br>413.23 hPa (309.95 mmHg) at 55 °C (131 °F)<br>98.64 hPa (73.99 mmHg) at 20 °C (68 °F) |
| l) Vapour density                               | 1.42 - (Air = 1.0)   |
| m) Relative density                             | 0.786 g/cm <sup>3</sup> at 25 °C (77 °F)   |
| n) Water solubility                             | completely soluble   |
| o) Partition coefficient: n-octanol/water       | log Pow: -0.54 at 25 °C (77 °F)  |
| p) Auto-ignition                                | 524.0 °C (975.2 °F)  |

temperature

- q) Decomposition temperature no data available
- r) Viscosity no data available
- s) Explosive properties Not explosive
- t) Oxidizing properties The substance or mixture is not classified as oxidizing.

## 9.2 Other safety information

Surface tension 29.0 mN/m at 20.0 °C (68.0 °F)

Relative vapour density 1.42 - (Air = 1.0)

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

### 10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

### 10.5 Incompatible materials

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

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - male - 1,320 - 6,690 mg/kg

LC50 Inhalation - mouse - 4 h - 3587 ppm  
(OECD Test Guideline 403)

LC50 Inhalation - rat - 4 h - 26.8 mg/l

LD50 Dermal - rabbit - male and female - > 2,000 mg/kg  
(OECD Test Guideline 402)

no data available

#### Skin corrosion/irritation

Skin - rabbit

Result: No skin irritation  
(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - rabbit

Result: Irritating to eyes.  
(OECD Test Guideline 405)

#### Respiratory or skin sensitisation

Buehler Test - guinea pig

Did not cause sensitisation on laboratory animals.  
(OECD Test Guideline 406)

### **Germ cell mutagenicity**

Hamster

ovary

Result: negative

Mutation in mammalian somatic cells.

Ames test

S. typhimurium

Result: Not mutagenic in Ames Test.

Hamster

ovary

Result: Equivocal evidence.

Sister chromatid exchange

Mutagenicity (micronucleus test)

mouse

Result: Positive results were obtained in some in vivo tests.

### **Carcinogenicity**

No evidence of carcinogenicity in animal studies (when indicated)

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

Animal testing did not show any effects on fertility.

### **Specific target organ toxicity - single exposure**

The substance or mixture is not classified as specific target organ toxicant, single exposure.

### **Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### **Aspiration hazard**

No aspiration toxicity classification

### **Additional Information**

RTECS: AL7700000

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

Lungs - Lung oedema - Based on Human Evidence

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## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

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

NOEC - Oryzias latipes - 102 mg/l - 21 d

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 3,600 mg/l - 48 h (OECD Test Guideline 202)

NOEC - Daphnia magna (Water flea) - 160 mg/l - 21 d

### **12.2 Persistence and degradability**

Biodegradability Result: 84 % - Readily biodegradable.  
(OECD Test Guideline 301C)

**12.3 Bioaccumulative potential**

No bioaccumulation is to be expected (log Pow <= 4).

**12.4 Mobility in soil**

Not expected to adsorb on soil.

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

Avoid release to the environment.

Stability in water

Remarks: Hydrolyses slowly.

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**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**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.

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**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

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**15. REGULATORY INFORMATION**

**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**



Acetonitrile	CAS-No. 75-05-8	Revision Date 2007-07-01
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### New Jersey Right To Know Components

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

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled
H312	Harmful in contact with skin.

### HMIS Rating

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

### NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

### Further information

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### Preparation Information

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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