

# SAFETY DATA SHEET

according to the Hazardous  
Products Regulations

Version 8.7  
Revision Date 15.07.2026  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Acetonitrile solution

Product Number : 574732  
Brand : Sigma-Aldrich  
Index-No. : 608-001-00-3

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

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : Not Available

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

Company : MilliporeSigma Canada Ltd.  
2149 WINSTON PARK DRIVE  
OAKVILLE ON L6H 6J8  
CANADA

Telephone : +1 905 829-9500  
Fax : +1 905 829-9292

### 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 CHEMTREC  
(International)  
24 Hours/day; 7 Days/week

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids : Category 2

Acute toxicity (Oral) : Category 4

Acute toxicity  
(Inhalation) : Category 4

Acute toxicity (Dermal) : Category 4

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Eye irritation : Category 2A

**GHS label elements**

Hazard pictograms : 

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.  
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.  
H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P261 Avoid breathing mist or vapours.  
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.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.  
P370 + P378 In case of fire: Use dry sand, dry chemical

or alcohol-resistant foam to extinguish.

**Storage:**

P403 + P235 Store in a well-ventilated place. Keep cool.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

CAS-No. : 608-001-00-3

**Components**

| Chemical name        | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|----------------------|-------------------|-----------------------|--------------|
| Acetonitrile         | 75-05-8*          | >= 80 - <= 100        | TSC          |
| trifluoroacetic acid | 76-05-1*          | > 0 - <= 0.1          | TSC          |

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret  
See Section 15 for HMIRA information.

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**SECTION 4. FIRST AID MEASURES**

- General advice : Show this safety data sheet to the doctor in attendance.
- If inhaled : After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.
- In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
- In case of eye contact : After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
- If swallowed : After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

|                                                             |                                                                                                                                        |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Most important symptoms and effects, both acute and delayed | : The most important known symptoms and effects are described in the labelling (see section 2 GHS label elements) and/or in section 11 |
| Protection of first-aiders                                  | : For personal protection see section 8.                                                                                               |
| Notes to physician                                          | : No data available                                                                                                                    |

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## SECTION 5. FIREFIGHTING MEASURES

|                              |                                                           |
|------------------------------|-----------------------------------------------------------|
| Suitable extinguishing media | : Foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry powder |
|------------------------------|-----------------------------------------------------------|

|                                |                                                                                |
|--------------------------------|--------------------------------------------------------------------------------|
| Unsuitable extinguishing media | : For this substance/mixture no limitations of extinguishing agents are given. |
|--------------------------------|--------------------------------------------------------------------------------|

|                                       |                |
|---------------------------------------|----------------|
| Specific hazards during fire fighting | : Combustible. |
|---------------------------------------|----------------|

Pay attention to flashback.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

|                               |                 |
|-------------------------------|-----------------|
| Hazardous combustion products | : Carbon oxides |
|-------------------------------|-----------------|

Nitrogen oxides (NO<sub>x</sub>)

|                                |                     |
|--------------------------------|---------------------|
| Specific extinguishing methods | : No data available |
|--------------------------------|---------------------|

|                     |                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------|
| Further information | : Remove container from danger zone and cool with water.<br>Suppress (knock down) gases/vapours/mists with a |
|---------------------|--------------------------------------------------------------------------------------------------------------|

water spray jet.  
Prevent fire extinguishing water from contaminating  
surface water or the ground water system.

Special protective  
equipment for fire-  
fighters : Stay in danger area only with self-contained breathing  
apparatus. Prevent skin contact by keeping a safe  
distance or by wearing suitable protective clothing.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions,  
protective equipment and  
emergency procedures : Advice for non-emergency personnel:  
Do not breathe vapours, aerosols.  
Avoid substance contact.  
Ensure adequate ventilation.  
Keep away from heat and sources of ignition.  
Evacuate the danger area, observe emergency  
procedures, consult an expert.  
Advice for emergency responders:  
Wear appropriate personal protective equipment, as  
indicated in Section 8.

Environmental  
precautions : Do not let product enter drains.  
Risk of explosion.

Methods and materials  
for containment and  
cleaning up : Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7  
and 10).  
Take up with liquid-absorbent material (e.g.  
Chemizorb® ). Dispose of properly. Clean up affected  
area.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2 GHS label elements

Advice on protection  
against fire and explosion : Keep away from open flames, hot surfaces and  
sources of ignition.  
Take precautionary measures against static discharge.

Advice on safe handling : Work under hood. Do not inhale substance/mixture.  
Avoid generation of vapours/aerosols.

Further information on  
storage conditions : Keep container tightly closed in a dry and well-  
ventilated place.  
Keep away from heat and sources of ignition.

Storage class : 3, Flammable liquids

Recommended storage temperature : Recommended storage temperature see product label.

Further information on storage stability : Handle and store under inert gas.

Packaging material : Suitable material: Mild Steel Drum

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components   | CAS-No. | Value type<br>(Form of exposure) | Control parameters /<br>Permissible concentration | Basis     |
|--------------|---------|----------------------------------|---------------------------------------------------|-----------|
| Acetonitrile | 75-05-8 | TWA                              | 20 ppm<br>34 mg/m <sup>3</sup>                    | CA AB OEL |
|              |         | TWA                              | 20 ppm                                            | CA BC OEL |
|              |         | TWAEV                            | 20 ppm                                            | CA QC OEL |
|              |         | TWA                              | 20 ppm                                            | ACGIH     |

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Remarks : required

|                          |                                                                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye protection           | : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).<br>Safety glasses |
| Skin and body protection | : Flame retardant antistatic protective clothing.                                                                                                 |
| Hygiene measures         | : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.                   |

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                     |                              |
|-----------------------------------------------------|------------------------------|
| Appearance                                          | : liquid                     |
| Colour                                              | : colourless                 |
| Odour                                               | : No data available          |
| Odour Threshold                                     | : No data available          |
| pH                                                  | : No data available          |
| Melting point                                       | : No data available          |
| Boiling point/boiling range                         | : 81 - 82 °C (1,013 hPa)     |
| Flash point                                         | : 6 °C<br>Method: closed cup |
| Evaporation rate                                    | : No data available          |
| Flammability (solid, gas)                           | : No data available          |
| Flammability (liquids)                              | : No data available          |
| Burning rate                                        | : No data available          |
| Upper explosion limit /<br>Upper flammability limit | : No data available          |
| Lower explosion limit /<br>Lower flammability limit | : No data available          |
| Vapour pressure                                     | : No data available          |
| Relative vapour density                             | : No data available          |

|                                           |                                   |
|-------------------------------------------|-----------------------------------|
| Relative density                          | : No data available               |
| Density                                   | : 0.782 g/cm <sup>3</sup> (25 °C) |
| Water solubility                          | : No data available               |
| Partition coefficient: n-octanol/water    | : No data available               |
| Autoignition temperature                  | : No data available               |
| Decomposition temperature                 | : No data available               |
| Viscosity, dynamic                        | : No data available               |
| Viscosity, kinematic                      | : No data available               |
| Flow time                                 | : No data available               |
| Explosive properties                      | : Not classified as explosive.    |
| Oxidizing properties                      | : none                            |
| Molecular weight                          | : 41.05 g/mol                     |
| Particle characteristics<br>Particle size | : No data available               |

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## SECTION 10. STABILITY AND REACTIVITY

|                                    |                                                                                                                                                            |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | : Vapours may form explosive mixture with air.                                                                                                             |
| Chemical stability                 | : The product is chemically stable under standard ambient conditions (room temperature) .                                                                  |
| Possibility of hazardous reactions | : No data available                                                                                                                                        |
| Conditions to avoid                | : Warming.                                                                                                                                                 |
| Incompatible materials             | : Steel (all types and surface treatments)<br>Strong bases<br>Bases<br>Oxidizing agents<br>Alkali metals<br>Metals<br>Reducing agents<br>Alcohols<br>acids |

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Exothermic in contact with water  
Reacts violently with:  
Aluminum  
Epoxides

Hazardous decomposition : In the event of fire: see section 5  
products

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - 617.62 mg/kg  
(Calculation method)

Inhalation: No data available

Acute toxicity estimate Inhalation - 4 h - 11.01 mg/l - vapour (Calculation method)

Symptoms: Possible symptoms: , mucosal irritations

Dermal: No data available

Acute toxicity estimate Dermal - 1,502 mg/kg  
(Calculation method)

##### Skin corrosion/irritation

No data available

##### Serious eye damage/eye irritation

Remarks: Mixture causes serious eye irritation.

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

No data available

##### Reproductive toxicity

No data available

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

No data available

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

No data available

##### Aspiration hazard

No data available

## 11.2 Additional Information

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., Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness

### Components

#### Acetonitrile

##### Acute toxicity

LD50 Oral - Mouse - male and female - 617 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Mouse - male and female - 4 h - 6.022 mg/l - vapour

(OECD Test Guideline 403)

Acute toxicity estimate Dermal - 1,500 mg/kg

(Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

##### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

##### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

##### Respiratory or skin sensitization

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

##### Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*

Result: negative

Remarks: (ECHA)

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

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

Remarks: (National Toxicology Program)

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Result: negative

Remarks: Sister chromatid exchange

Test system: *Saccharomyces cerevisiae*

Result: positive

Remarks: Cytogenetic analysis

(ECHA)

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female

Result: negative

#### **Carcinogenicity**

No evidence of carcinogenicity in animal studies.

#### **Reproductive toxicity**

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

### **trifluoroacetic acid**

#### **Acute toxicity**

Symptoms: Nausea, Vomiting, strong pain (risk of perforation!), If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

LC50 Inhalation - Rat - 4 h - 10.01 mg/l - vapour

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Inhalation: Corrosive to respiratory system.

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Dermal: No data available

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Causes severe burns.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Remarks: Necrosis

Causes poorly healing wounds.

#### **Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

#### **Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Human lymphocytes

Result: negative

**Carcinogenicity**

No data available

**Reproductive toxicity**

Suspected of damaging the unborn child.

**Specific target organ toxicity - single exposure**

Acute oral toxicity - Nausea, Vomiting, strong pain (risk of perforation!), If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Acetonitrile:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1,640 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Remarks: (ECHA)

Toxicity to algae/aquatic plants : NOEC (Phaeodactylum tricornutum): 400 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: ISO 10253  
GLP: yes

ErC50 (Phaeodactylum tricornutum): 9,696 mg/l

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Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: ISO 10253  
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (*Oryzias latipes*): 102 mg/l  
End point: mortality  
Exposure time: 21 d  
Test Type: flow-through test  
Analytical monitoring: yes  
Method: OECD Test Guideline 204  
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l  
Exposure time: 30 min  
Test Type: static test  
Method: OECD Test Guideline 209  
GLP: yes

**trifluoroacetic acid:**

Toxicity to fish : LC50 (*Danio rerio* (zebra fish)): > 999 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 203  
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 999 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 202  
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (*Pseudokirchneriella subcapitata*): 237.07 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 201  
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): > 25 mg/l  
End point: reproduction rate  
Exposure time: 21 d  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 211  
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): > 832 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
GLP: yes

### **Ecotoxicology Assessment**

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

### **Persistence and degradability**

#### **Components:**

##### **Acetonitrile:**

Biodegradability : Inoculum: activated sludge, non-adapted  
Concentration: 684 mg/l  
Result: Readily biodegradable.  
Biodegradation: 70 %  
Exposure time: 21 d  
Method: OECD Test Guideline 310  
GLP: yes

Stability in water : Degradation half life (DT50): > 9,999 d pH: 7  
Hydrolysis: at 25 °C  
Remarks: (calculated)  
Hydrolyses slowly.

##### **trifluoroacetic acid:**

Biodegradability : aerobic  
Inoculum: activated sludge, non-adapted  
Concentration: 20 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D  
GLP: yes

aerobic  
Inoculum: activated sludge, non-adapted  
Concentration: 17.6 mg/l  
Result: Not inherently biodegradable.  
Biodegradation: 58 %  
Exposure time: 55 d  
Method: OECD Test Guideline 302A  
GLP: yes

### **Bioaccumulative potential**

#### **Components:**

##### **Acetonitrile:**

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Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow ≤ 4).

Partition coefficient: n-octanol/water : log Pow: -0.54 (25 °C)  
Remarks: Bioaccumulation is not expected.

**trifluoroacetic acid:**

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow ≤ 4).

Partition coefficient: n-octanol/water : log Pow: -2.10  
Remarks: Bioaccumulation is not expected.

**Mobility in soil**

**Components:**

**Acetonitrile:**

Distribution among environmental compartments : Adsorption/Soil  
Koc: 16, log Koc: 1.21  
Remarks: Mobile in soils (Lit.)

Stability in soil : Dissipation time: > 168 - < 672 h  
Method: (calculated)  
Remarks: Not expected to adsorb on soil.

**Other adverse effects**

**Components:**

**Acetonitrile:**

Additional ecological information : Avoid release to the environment.

**trifluoroacetic acid:**

Additional ecological information : Harmful effect due to pH shift.  
Caustic even in diluted form.  
Hazard for drinking water supplies.

Discharge into the environment must be avoided.

**Endocrine disrupting properties**

No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS**

**Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave

chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1648  
Proper shipping name : Acetonitrile solution  
Class : 3  
Packing group : II  
Labels : Class 3 - Flammable liquids  
Packing instruction (cargo : 364  
aircraft)  
Packing instruction : 353  
(passenger aircraft)

#### IMDG-Code

UN number : UN 1648  
Proper shipping name : ACETONITRILE SOLUTION  
  
Class : 3  
Packing group : II  
Labels : 3  
EmS Code : F-E, S-D  
Marine pollutant : no

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### National Regulations

#### TDG

UN number : UN 1648  
Proper shipping name : ACETONITRILE  
  
Class : 3  
Packing group : II  
Labels : 3  
ERG Code : 127  
Marine pollutant : no

#### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

**NPRI Components** : Acetonitrile



**Canadian lists**

No substances are subject to a Significant New Activity Notification.

**SECTION 16. OTHER INFORMATION****Full text of other abbreviations**

|                   |   |                                                                                                                                         |
|-------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------|
| ACGIH             | : | USA. ACGIH Threshold Limit Values (TLV)                                                                                                 |
| CA AB OEL         | : | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)                                                                     |
| CA BC OEL         | : | Canada. British Columbia OEL                                                                                                            |
| CA QC OEL         | : | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| ACGIH / TWA       | : | 8-hour, time-weighted average                                                                                                           |
| CA AB OEL / TWA   | : | 8-hour Occupational exposure limit                                                                                                      |
| CA BC OEL / TWA   | : | 8-hour time weighted average                                                                                                            |
| CA QC OEL / TWAEV | : | Time-weighted average exposure value                                                                                                    |

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations;

UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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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Date format : mm/dd/yyyy

CA / EN