



## Acetonitrile, UHPLC-MS

### GFS CHEMICALS INC

Version No: 2.2

Safety Data Sheet according to OSHA HazCom Standard (2024) requirements

Chemwatch Hazard Alert Code: 4

Initial Date: 24/08/2025

Revision Date: 07/10/2025

Print Date: 05/03/2026

L.GHS.USA.EN

#### SECTION 1 Identification

##### Product Identifier

Product name	Acetonitrile, UHPLC-MS
Chemical Name	Not Available
Synonyms	Not Available
Proper shipping name	Acetonitrile
Chemical formula	C <sub>2</sub> H <sub>3</sub> N
Other means of identification	Not Available
CAS number	75-05-8

##### Recommended use of the chemical and restrictions on use

Relevant identified uses	Solvents Laboratory reagent Intermediate
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##### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	GFS CHEMICALS INC
Address	155 Hidden Ravines Dr., Powell OH 43065 Columbus OH United States
Telephone	+1 740-881-5501
Fax	Not Available
Website	<a href="http://www.gfschemicals.com">www.gfschemicals.com</a>
Email	<a href="mailto:service@gfschemicals.com">service@gfschemicals.com</a>

##### Emergency phone number

Association / Organisation	Chemtrec
Emergency telephone number(s)	(800)262-8200 (US)
Other emergency telephone number(s)	+1-703-741-550 (International)

#### SECTION 2 Hazard(s) identification

##### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health, Red = Fire, Yellow = Reactivity and White = Special (Oxidizer or water reactive substances)

Classification	Flammable Liquids Category 2, Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity (Inhalation) Category 4
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##### Label elements

Hazard pictogram(s)	
Signal word	Danger

## Acetonitrile, UHPLC-MS

## Hazard statement(s)

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

## Hazard(s) not otherwise classified

Not Applicable

## Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P271	Use only outdoors or in a well-ventilated area.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves, protective clothing, eye protection and face protection.

## Precautionary statement(s) Response

P370+P378	In case of fire: Use alcohol resistant foam or fine spray/water fog to extinguish.
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/doctor/physician/first aider/if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P362+P364	Take off contaminated clothing and wash it before reuse.

## Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
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## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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No further product hazard information.

## SECTION 3 Composition / information on ingredients

## Substances

CAS No	%[weight]	Name
75-05-8	100	acetonitrile

## Mixtures

See section above for composition of Substances

## SECTION 4 First-aid measures

## Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Quickly but gently, wipe material off skin with a dry, clean cloth.</li> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
Inhalation	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> </ul>

Continued...

## Acetonitrile, UHPLC-MS

	<ul style="list-style-type: none"> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ <b>IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.</b></li> <li>▶ For advice, contact a Poisons Information Centre or a doctor.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.</li> <li>▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.</li> <li>▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.</li> </ul> <p><b>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</b></p> <ul style="list-style-type: none"> <li>▶ <b>INDUCE</b> vomiting with fingers down the back of the throat, <b>ONLY IF CONSCIOUS</b>. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> </ul> <p><b>NOTE:</b> Wear a protective glove when inducing vomiting by mechanical means.</p>

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

See Section 11

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

For cyanide intoxication (and for certain nitriles which produce cyanide ion)

- ▶ Signs symptoms of acute cyanide poisoning reflect cellular hypoxia and are often non-specific.
- ▶ Cyanosis may be a late finding.
- ▶ A *bradycardic*, hypertensive and tachypneic patient suggests poisoning especially if CNS and cardiovascular depression subsequently occurs.
- ▶ Immediate attention should be directed towards assisted ventilation, administration of 100% oxygen, insertion of intravenous lines and institution of cardiac monitoring.
- ▶ Obtain an arterial blood gas immediately and correct any severe metabolic acidosis (pH below 7.15).
- ▶ Mildly symptomatic patients generally require supportive care alone. Nitrites should not be given indiscriminately - in all cases of moderate to severe poisoning, they should be given in conjunction with thiosulfate. As a temporizing measure supply amyl nitrite perles (0.2ml inhaled 30 seconds every minute) until intravenous lines for sodium nitrite are established. 10 ml of a 3% solution is administered over 4 minutes to produce 20% methaemoglobin in adults. Follow directly with 50 ml of 25% sodium thiosulfate, at the same rate, IV. If symptoms reappear or persist within 1/2-1 hour, repeat nitrite and thiosulfate at 50% of initial dose. As the mode of action involves the metabolic conversion of the thiosulfate to thiocyanate, renal failure may enhance thiocyanate toxicity.
- ▶ Methylene blue is not an antidote. [Ellenhorn and Barceloux: Medical Toxicology]

If amyl nitrite intervention is employed then Medical Treatment Kits should contain the following:

- ▶ One box containing one dozen amyl nitrite ampoules
- ▶ Two sterile ampoules of sodium nitrite solution (10 mL of a 3% solution in each)
- ▶ Two sterile ampoules of sodium thiosulfate solution (50 mL of a 25% solution in each)
- ▶ One 10 mL sterile syringe. One 50 mL sterile syringe. Two sterile intravenous needles. One tourniquet.
- ▶ One dozen gauze pads.
- ▶ Latex gloves
- ▶ A "Biohazard" bag for disposal of bloody/contaminated equipment.
- ▶ A set of cyanide instructions on first aid and medical treatment.

- Notes on the use of amyl nitrite:-

- ▶ AN is highly volatile and flammable - do not smoke or use around a source of ignition.
- ▶ If treating patient in a windy or draughty area provide some shelter or protection (shirt, wall, drum, cupped hand etc.) to prevent amyl nitrite vapour from being blown away. Keep ampoule upwind from the nose, the objective is to get amyl nitrite into the patients lungs.
- ▶ Rescuers should avoid AN inhalation to avoid becoming dizzy and losing competence.
- ▶ Lay the patient down. Since AN dilates blood vessels and lowers blood pressure, lying down will help keep patient conscious.
- ▶ **DO NOT overuse - excessive use might put the patient into shock.** Experience at DuPont plants has not shown any serious after-effects from treatment with amyl nitrite.

**ADDITIONAL NOTES:**

- ▶ Major medical treatment procedures may vary e.g. US (FDA method as recommended by DuPont) uses amyl nitrite as a methaemoglobin generator, followed by treatment with sodium nitrite and then sodium thiosulfate.

**MODES OF ACTION:** Amyl nitrite (AN) reacts with haemoglobin (HB) to form about 5% methaemoglobin (MHB). Sodium nitrite (NaNO<sub>2</sub>) reacts with haemoglobin to form approximately 20-30% methaemoglobin. Methaemoglobin attracts cyanide ions (CN) from tissue and binds with them to become cyanmethaemoglobin (CNMHB). Sodium thiosulfate (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>) converts cyanmethaemoglobin to thiocyanate (HSCN) which is excreted by the kidneys. i.e. AN + HB = MHB NaNO<sub>2</sub> + HB = MHB CN + MHB = CNMHB Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> + CNMHB + O<sub>2</sub> = HSCN

- ▶ The administration of the antidote salts is intravenous in normal saline, Ringers lactate or other available IV fluid.
- ▶ European practice may use 4-dimethylaminophenol (DMAP) as a methaemoglobin generator. Also hydroxycobalamin (Vitamin B12a) is used. Hydroxycobalamin works by reacting with cyanide to form cyanocobalamin (Vitamin B12) which is excreted in the urine.
- ▶ European and Australian NOHSC (ASCC) propose dicobalt edetate (Kelocyanor) as antidote. This acts by chelating cyanide to form stable cobalticyanide, which is excreted in the urine. In all cases hyperbaric therapy may increase the efficiency of a cyanide antidote kit.

**SECTION 5 Fire-fighting measures****Extinguishing media**

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

**Special hazards arising from the substrate or mixture****Fire Incompatibility**

- ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

**Special protective equipment and precautions for fire-fighters****Fire Fighting**

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ May be violently or explosively reactive.
- ▶ Wear full body protective clothing with breathing apparatus.
- ▶ Prevent, by any means available, spillage from entering drains or water course.

Continued...

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	<ul style="list-style-type: none"> <li>▶ Consider evacuation (or protect in place).</li> <li>▶ Fight fire from a safe distance, with adequate cover.</li> <li>▶ If safe, switch off electrical equipment until vapour fire hazard removed.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> </ul>
<b>Fire/Explosion Hazard</b>	<p>Combustion products include:</p> <ul style="list-style-type: none"> <li>▶ carbon dioxide (CO<sub>2</sub>)</li> <li>▶ Liquid and vapour are highly flammable.</li> <li>▶ Severe fire hazard when exposed to heat, flame and/or oxidisers.</li> <li>▶ Vapour forms an explosive mixture with air.</li> <li>▶ Severe explosion hazard, in the form of vapour, when exposed to flame or spark.</li> <li>▶ Vapour may travel a considerable distance to source of ignition.</li> <li>▶ Heating may cause expansion / decomposition with violent rupture of containers.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO)</li> </ul> <p>nitrogen oxides (NO<sub>x</sub>)</p> <ul style="list-style-type: none"> <li>▶ other pyrolysis products typical of burning organic material.</li> </ul>

**SECTION 6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

See section 8

**Environmental precautions**

See section 12

**Methods and material for containment and cleaning up**

<b>Minor Spills</b>	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb small quantities with vermiculite or other absorbent material.</li> <li>▶ Wipe up.</li> <li>▶ Collect residues in a flammable waste container.</li> </ul>																																																																											
<b>Major Spills</b>	<p>Environmental hazard - contain spillage.          Chemical Class: cyanides and nitriles          For release onto land: recommended sorbents listed in order of priority.</p> <table border="1"> <thead> <tr> <th>SORBENT TYPE</th> <th>RANK</th> <th>APPLICATION</th> <th>COLLECTION</th> <th>LIMITATIONS</th> </tr> </thead> <tbody> <tr> <td colspan="5"><b>LAND SPILL - SMALL</b></td> </tr> <tr> <td>cross-linked polymer - pillow</td> <td>1</td> <td>throw</td> <td>pitchfork</td> <td>R,DGC, RT</td> </tr> <tr> <td>cross-linked polymer - particulate</td> <td>1</td> <td>shovel</td> <td>shovel</td> <td>R, W, SS</td> </tr> <tr> <td>sorbent clay - particulate</td> <td>2</td> <td>shovel</td> <td>shovel</td> <td>R,I, P</td> </tr> <tr> <td>foamed glass - pillow</td> <td>2</td> <td>throw</td> <td>pitchfork</td> <td>R, P, DGC, RT</td> </tr> <tr> <td>wood fiber - pillow</td> <td>3</td> <td>throw</td> <td>pitchfork</td> <td>R, P, DGC, RT</td> </tr> <tr> <td>treated wood fiber - pillow</td> <td>3</td> <td>throw</td> <td>pitchfork</td> <td>DGC, RT</td> </tr> <tr> <td colspan="5"><b>LAND SPILL - MEDIUM</b></td> </tr> <tr> <td>sorbent clay - particulate</td> <td>1</td> <td>blower</td> <td>skid loader</td> <td>R, I, P</td> </tr> <tr> <td>cross-linked polymer - particulate</td> <td>2</td> <td>blower</td> <td>skid loader</td> <td>R,W, SS</td> </tr> <tr> <td>polypropylene - particulate</td> <td>3</td> <td>blower</td> <td>skid loader</td> <td>R, SS, DGC</td> </tr> <tr> <td>expanded mineral - particulate</td> <td>4</td> <td>blower</td> <td>skid loader</td> <td>R, I, W, P, DGC</td> </tr> <tr> <td>wood fiber - particulate</td> <td>5</td> <td>blower</td> <td>skid loader</td> <td>R, W, P, DGC</td> </tr> <tr> <td>diatomite - particulate</td> <td>6</td> <td>blower</td> <td>skid loader</td> <td>R, I, W, P</td> </tr> </tbody> </table> <p>Legend          DGC: Not effective where ground cover is dense          R: Not reusable          I: Not incinerable          P: Effectiveness reduced when rainy          RT: Not effective where terrain is rugged          SS: Not for use within environmentally sensitive sites          W: Effectiveness reduced when windy          Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;          R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988</p> <ul style="list-style-type: none"> <li>▶ <b>DO NOT touch the spill material</b></li> </ul> <p>For alkyl nitriles:          For residue:</p> <ul style="list-style-type: none"> <li>▶ Add alkaline hypochlorite solution to spill to produce cyanate.</li> <li>▶ Neutralise liquid, and absorb with sawdust.</li> <li>▶ Collect solid residues and seal in drums for disposal.</li> <li>▶ Wash spill area with large quantities of water.</li> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May be violently or explosively reactive.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> </ul>	SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS	<b>LAND SPILL - SMALL</b>					cross-linked polymer - pillow	1	throw	pitchfork	R,DGC, RT	cross-linked polymer - particulate	1	shovel	shovel	R, W, SS	sorbent clay - particulate	2	shovel	shovel	R,I, P	foamed glass - pillow	2	throw	pitchfork	R, P, DGC, RT	wood fiber - pillow	3	throw	pitchfork	R, P, DGC, RT	treated wood fiber - pillow	3	throw	pitchfork	DGC, RT	<b>LAND SPILL - MEDIUM</b>					sorbent clay - particulate	1	blower	skid loader	R, I, P	cross-linked polymer - particulate	2	blower	skid loader	R,W, SS	polypropylene - particulate	3	blower	skid loader	R, SS, DGC	expanded mineral - particulate	4	blower	skid loader	R, I, W, P, DGC	wood fiber - particulate	5	blower	skid loader	R, W, P, DGC	diatomite - particulate	6	blower	skid loader	R, I, W, P
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- ▶ Consider evacuation (or protect in place).
- ▶ No smoking, naked lights or ignition sources.
- ▶ Increase ventilation.
- ▶ Stop leak if safe to do so.
- ▶ Water spray or fog may be used to disperse / absorb vapour.
- ▶ Contain spill with sand, earth or vermiculite.
- ▶ Use only spark-free shovels and explosion proof equipment.
- ▶ Collect recoverable product into labelled containers for recycling.
- ▶ Absorb remaining product with sand, earth or vermiculite.
- ▶ Collect solid residues and seal in labelled drums for disposal.
- ▶ Wash area and prevent runoff into drains.
- ▶ If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

#### Safe handling

- ▶ Containers, even those that have been emptied, may contain explosive vapours.
- ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- ▶ Avoid skin contact, including inhalation.
- ▶ Wear protective clothing when risk of exposure occurs.
- ▶ Use in a well-ventilated area.
- ▶ Prevent concentration in hollows and sumps.
- ▶ **DO NOT enter confined spaces until atmosphere has been checked.**
- ▶ Avoid smoking, naked lights, heat or ignition sources.
- ▶ When handling, **DO NOT eat, drink or smoke.**
- ▶ Vapour may ignite on pumping or pouring due to static electricity.
- ▶ **DO NOT use plastic buckets.**
- ▶ Earth and secure metal containers when dispensing or pouring product.
- ▶ Use spark-free tools when handling.
- ▶ Avoid contact with incompatible materials.
- ▶ Keep containers securely sealed.
- ▶ Avoid physical damage to containers.
- ▶ Always wash hands with soap and water after handling.
- ▶ Work clothes should be laundered separately.
- ▶ Use good occupational work practice.
- ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.
- ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

#### Other information

- ▶ Store in original containers in approved flame-proof area.
- ▶ No smoking, naked lights, heat or ignition sources.
- ▶ **DO NOT store in pits, depression, basement or areas where vapours may be trapped.**
- ▶ Keep containers securely sealed.
- ▶ Store away from incompatible materials in a cool, dry well ventilated area.
- ▶ Protect containers against physical damage and check regularly for leaks.
- ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.
- ▶ Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
- ▶ Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.
- ▶ For containers, or container linings use mild steel, stainless steel. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FMK), which have been specifically tested for compatibility with this product.
- ▶ For container linings, use amine-adduct cured epoxy paint.
- ▶ For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
- ▶ Unsuitable material: Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
- ▶ Do not cut, drill, grind, weld or perform similar operations on or near containers. Containers, even those that have been emptied, can contain explosive vapours.

### Conditions for safe storage, including any incompatibilities

#### Suitable container

- ▶ Glass container is suitable for laboratory quantities
- ▶ Packing as supplied by manufacturer.
- ▶ Plastic containers may only be used if approved for flammable liquid.
- ▶ Check that containers are clearly labelled and free from leaks.
- ▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.
- ▶ For materials with a viscosity of at least 2680 cSt. (23 deg. C)
- ▶ For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)
- ▶ Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used.
- ▶ Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages
- ▶ In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

#### Storage incompatibility

- Acetonitrile
- ▶ forms cyanide gas on contact with steam
  - ▶ reacts violently with oxidisers such as chlorine, bromine, fluorine; with chlorosulfonic acid, oleum or sulfuric acid
  - ▶ is incompatible with water (especially if acid or alkaline), acids, caustics, nitrating agents, indium, nitrogen tetroxide, sulfur trioxide, iron(III) salts of perchlorate, nitrogen fluoride compounds
  - ▶ attacks most rubber and plastics
  - ▶ may accumulate electrical charges, causing ignition of vapours
  - ▶ Contact with acids produces toxic fumes
  - ▶ Nitriles may polymerise in the presence of metals and some metal compounds.
  - ▶ They are incompatible with acids; mixing nitriles with strong oxidising acids can lead to extremely violent reactions.
  - ▶ Nitriles are generally incompatible with other oxidising agents such as peroxides and epoxides.

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- ▶ The combination of bases and nitriles can produce hydrogen cyanide. Nitriles are hydrolysed exothermally in both aqueous acid and base to give carboxylic acids (or salts of carboxylic acids).
- ▶ Nitriles can react vigorously with reducing agents.
- ▶ The covalent cyano group is endothermic and many organic nitriles are reactive under certain conditions; N-cyano derivatives are reactive or unstable.
- ▶ The majority of endothermic compounds are thermodynamically unstable and may decompose explosively under various circumstances of initiation.
- ▶ Many but not all endothermic compounds have been involved in decompositions, reactions and explosions and, in general, compounds with significantly positive values of standard heats of formation, may be considered suspect on stability grounds.

BREThERICK L.: Handbook of Reactive Chemical Hazards

**WARNING:**

May decompose violently or explosively on contact with other substances.

- ▶ This substance, or one of its components, is one of the relatively few compounds which are described as "endothermic" i.e. heat is absorbed into the compound, rather than released from it, during its formation.
- ▶ The majority of endothermic compounds are thermodynamically unstable and may decompose explosively under various circumstances of initiation.
- ▶ Many but not all endothermic compounds have been involved in decompositions, reactions and explosions and, in general, compounds with significantly positive values of standard heats of formation, may be considered suspect on stability grounds.

BREThERICK L.: Handbook of Reactive Chemical Hazards

- ▶ Avoid reaction with oxidising agents

**SECTION 8 Exposure controls / personal protection****Control parameters****Occupational Exposure Limits (OEL)****INGREDIENT DATA**

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Limits (PELs) Table Z-1	acetonitrile	Acetonitrile	40 ppm / 70 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	acetonitrile	Acetonitrile	20 ppm / 34 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

**Emergency Limits**

Ingredient	TEEL-1	TEEL-2	TEEL-3
acetonitrile	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
acetonitrile	500 ppm	137 ppm

**MATERIAL DATA**

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996)

Exposed individuals are **NOT** reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	As "A" for 50-90% of persons being distracted
C	1-26	As "A" for less than 50% of persons being distracted
D	0.18-1	10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As "D" for less than 10% of persons aware of being tested

for acetonitrile:

Odour Threshold Value: 1161 ppm (detection)

Exposure at or below the TLV-TWA and STEL is thought to protect the worker against organic cyanide poisoning and injury to the respiratory tract and liver. Volunteers all detected odour at 40 ppm for the first two or three hours then experienced olfactory fatigue.

Odour Safety Factor (OSF)

OSF=0.034 (ACETONITRILE)

**Exposure controls****Appropriate engineering controls**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Continued...

## Acetonitrile, UHPLC-MS

For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

· Adequate ventilation is typically taken to be that which limits the average concentration to no more than 25% of the LEL within the building, room or enclosure containing the dangerous substance.

· Ventilation for plant and machinery is normally considered adequate if it limits the average concentration of any dangerous substance that might potentially be present to no more than 25% of the LEL. However, an increase up to a maximum 50% LEL can be acceptable where additional safeguards are provided to prevent the formation of a hazardous explosive atmosphere. For example, gas detectors linked to emergency shutdown of the process might be used together with maintaining or increasing the exhaust ventilation on solvent evaporating ovens and gas turbine enclosures.

· Temporary exhaust ventilation systems may be provided for non-routine higher-risk activities, such as cleaning, repair or maintenance in tanks or other confined spaces or in an emergency after a release. The work procedures for such activities should be carefully considered..

The atmosphere should be continuously monitored to ensure that ventilation is adequate and the area remains safe. Where workers will enter the space, the ventilation should ensure that the concentration of the dangerous substance does not exceed 10% of the LEL (irrespective of the provision of suitable breathing apparatus)

Individual protection measures, such as personal protective equipment



Eye and face protection

- ▶ Safety glasses with side shields.
- ▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

Skin protection

See Hand protection below

Hands/feet protection

- ▶ Wear chemical protective gloves, e.g. PVC.
  - ▶ Wear safety footwear or safety gumboots, e.g. Rubber
- The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
- Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:
- frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
  - dexterity
- Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
  - Contaminated gloves should be replaced.
- As defined in ASTM F-739-96 in any application, gloves are rated as:
- Excellent when breakthrough time > 480 min
  - Good when breakthrough time > 20 min
  - Fair when breakthrough time < 20 min
  - Poor when glove material degrades
- For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.
- It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Continued...

## Acetonitrile, UHPLC-MS

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

for acetonitrile:  
Butyl rubber, PVAL, Teflon, Saranex, Silvershield, Viton/ chlorobutyl are all highly resistant to permeation

**Body protection** See Other protection below

**Other protection**

- ▶ Overalls.
- ▶ PVC Apron.
- ▶ PVC protective suit may be required if exposure severe.
- ▶ Eyewash unit.
- ▶ Ensure there is ready access to a safety shower.
- ▶ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- ▶ For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).
- ▶ Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

**Recommended material(s)****GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the: **"Forsberg Clothing Performance Index"**.

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Acetonitrile, UHPLC-MS

Material	CPI
BUTYL	A
BUTYL/NEOPRENE	A
CPE	A
PE/EVAL/PE	A
PVA	A
SARANEX-23	A
NEOPRENE	B
TEFLON	B
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NITRILE	C
VITON/NEOPRENE	C

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

**Ansell Glove Selection**

Glove — In order of recommendation
AlphaTec® 15-554
BioClean™ Ultimate BUPS
DermaShield™ 73-711
MICROFLEX® 63-864
AlphaTec® 02-100
MICROFLEX® Diamond Grip® MF-300
MICROFLEX® NeoPro® NPG-888
TouchNTuff® DermaShield™ 73-701
MICROFLEX® 73-847
MICROFLEX® Neogard® C52

The suggested gloves for use should be confirmed with the glove supplier.

**Respiratory protection**

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS	-	A-PAPR-AUS / Class 1
up to 50 x ES	-	A-AUS / Class 1	-
up to 100 x ES	-	A-2	A-PAPR-2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

**SECTION 9 Physical and chemical properties****Information on basic physical and chemical properties**

Continued...

## Acetonitrile, UHPLC-MS

<b>Appearance</b>	Not Available		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	525
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature (°C)</b>	Not Available
<b>Melting point / freezing point (°C)</b>	-46	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	81	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	2	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	HIGHLY FLAMMABLE.	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	16	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	4.4	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	9.70	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available
<b>Heat of Combustion (kJ/g)</b>	Not Available	<b>Ignition Distance (cm)</b>	Not Available
<b>Flame Height (cm)</b>	Not Available	<b>Flame Duration (s)</b>	Not Available
<b>Enclosed Space Ignition Time Equivalent (s/m3)</b>	Not Available	<b>Enclosed Space Ignition Deflagration Density (g/m3)</b>	0.79
<b>Nanoform Solubility</b>	Not Available	<b>Nanoform Particle Characteristics</b>	Not Available
<b>Particle Size</b>	Not Available		

## SECTION 10 Stability and reactivity

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Presence of elevated temperatures.</li> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

## SECTION 11 Toxicological information

## Information on toxicological effects

<b>a) Acute Toxicity</b>	There is sufficient evidence to classify this material as acutely toxic.
<b>b) Skin Irritation/Corrosion</b>	Based on available data, the classification criteria are not met.
<b>c) Serious Eye Damage/Irritation</b>	There is sufficient evidence to classify this material as eye damaging or irritating
<b>d) Respiratory or Skin sensitisation</b>	Based on available data, the classification criteria are not met.
<b>e) Mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>f) Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>g) Reproductivity</b>	Based on available data, the classification criteria are not met.
<b>h) STOT - Single Exposure</b>	Based on available data, the classification criteria are not met.
<b>i) STOT - Repeated Exposure</b>	Based on available data, the classification criteria are not met.
<b>j) Aspiration Hazard</b>	Based on available data, the classification criteria are not met.

<b>Inhaled</b>	<p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.</p> <p>Strong evidence exists that exposure to the material may produce serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by inhalation.</p> <p>The odour of acetonitrile is considered to give insufficient warning properties of exposure. The vapour is highly toxic, and inhalation may cause loss of consciousness. Effects of inhalation exposure are headache, general weakness, with nausea, and reduced pulse rate and blood pressure. Other symptoms include subnormal temperature, shallow respiration, and cyanosis (a blue discolouration of the skin due to lack of oxygen). The peak effects may be delayed for several hours. Convulsions and collapse may follow. Exposure to concentrations of 160 ppm acetonitrile, in air, for 4 hours, has caused flushing of the face (2 hour delay following exposure) and bronchial tightness (5 hour delay). Heavier exposures produced systemic effects with symptoms ranging from headache, nausea, lassitude to vomiting, chest or abdominal pain, respiratory depression, extreme weakness, stupor, convulsions and, for severe exposures, depending on time and concentration, death.</p>
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Continued...

## Acetonitrile, UHPLC-MS

Ingestion	<p>Severely toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 5 gram may be fatal or may produce serious damage to the health of the individual.</p> <p>Strong evidence exists that exposure to the material may produce serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by swallowing.</p> <p>Many nitriles produce similar symptoms to those produced by hydrogen cyanide but the onset of these symptoms is related to the ease with which cyanide is metabolically released from the substance. Frequently they produce primary eye and skin irritation and are absorbed rapidly and completely through intact skin. The toxicity of individual nitriles is sufficiently different to discourage use of the term "organic nitriles".</p> <p>Exposure to some nitriles may increase salivation, flushing of the face, irritation of the eyes and respiratory tract, shallow respiration, nausea, vomiting, weakness, headache and diarrhoea. Jaundice, anaemia and leukocytosis have been reported in certain case</p> <p>The toxic properties of cyanide depend on its ability to inhibit enzymes required for the respiration of cells within the body. Acute exposure can cause profuse ineffective breathing, irregular heartbeat, unconsciousness, coma and death by asphyxia. At very low dosages symptoms include weakness, headache, confusion, nausea and vomiting. Normal blood pressure with rapid pulse is usual in mild cases. The respiratory rate varies with the intensity of exposure: rapid with mild exposure, or slow and gasping with severe exposure. Symptoms of mild exposure are reversed when exposure ceases.</p> <p>Symptoms of poisoning may include salivation, nausea without vomiting, anxiety, confusion, vertigo, giddiness, lower jaw stiffness, convulsions, spasm (opisthotonos), paralysis, coma and cardiac arrhythmias Cyanide readily forms stable complexes with biologically active metal ions, notably the ferric ion of cytochrome oxidase, producing significant inhibition of enzyme activity with a consequent loss of a cell's ability to utilise oxygen. Cyanosis (blue-grey discolouration of the skin and lips) is often present in cyanide and nitrile poisonings but may be a late finding. Non-lethal doses of cyanide are eventually released from the complex to be transformed to thiocyanate and excreted in the urine.</p>										
Skin Contact	<p>Strong evidence exists that exposure to the material may produce serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by skin contact.</p> <p>The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p> <p>Skin contact with the material may produce toxic effects; systemic effects may result following absorption.</p>										
Eye	<p>Evidence exists, or practical experience predicts, that the material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Eye contact may cause significant inflammation with pain. Corneal injury may occur; permanent impairment of vision may result unless treatment is prompt and adequate. Repeated or prolonged exposure to irritants may cause inflammation characterised by a temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.</p>										
Chronic	<p>Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.</p> <p>The toxic properties of cyanide result from its ability to inhibit enzymes required for the respiration of cells within the body.</p> <p>Chronic exposure to cyanides, at levels too low to produce clinical complaints, may cause dermatitis, itching, scarlet rash, perforation of nasal septum, throat irritation, muscular cramps, weight loss and enlargement of the thyroid gland. Workers with pre-existing CNS, heart and lung disorders are at significant risk.</p> <p>A wide range of symptoms are thought to be caused by long-term, low-level (often less than 10 ppm) exposure to cyanides. Symptoms include persistent runny nose, weakness, dizziness, giddiness, headache, nausea, vomiting, abdominal pain, throat irritation, changes in taste and smell, muscle cramps, weight loss, flushing of the face, itching and irritation of the upper respiratory tract, throat and eyes and enlargement of the thyroid gland. These symptoms are not specific to cyanide exposure; therefore it has been difficult to prove that chronic cyanide toxicity exists.</p> <p>Repeated minor contact with cyanides produces a characteristic scarlet rash with itching, papules (small, superficial raised spots on the skin), perforation of the nasal septum and possible sensitisation. Concerns have been expressed that low-level, long term exposures may result in damage to the nerves of the eye.</p> <p>Chronic exposure to cyanides and certain nitriles may result in interference to iodine uptake by thyroid gland and its consequent enlargement. This occurs following metabolic conversion of the cyanide moiety to the less toxic thiocyanate which is excreted in the urine. Thyroid insufficiency may also occur as a result of metabolic conversion of cyanides to the corresponding thiocyanate..</p> <p>A small amount of cyanide is excreted, unchanged, in the breath, sweat and urine.</p>										
Acetonitrile, UHPLC-MS	<table border="1"> <thead> <tr> <th data-bbox="384 1480 938 1509">TOXICITY</th> <th data-bbox="938 1480 1503 1509">IRRITATION</th> </tr> </thead> <tbody> <tr> <td data-bbox="384 1509 938 1547">Dermal (rabbit) LD50: &gt;2000 mg/kg<sup>[1]</sup></td> <td data-bbox="938 1509 1503 1547">Eye (Rodent - rabbit): 100uL/24H - Moderate</td> </tr> <tr> <td data-bbox="384 1547 938 1585">Inhalation(Rabbit) LC50; 2828 ppm4h<sup>[2]</sup></td> <td data-bbox="938 1547 1503 1585">Eye: adverse effect observed (irritating)<sup>[1]</sup></td> </tr> <tr> <td data-bbox="384 1585 938 1624">Oral (Rabbit) LD50; 50 mg/kg<sup>[2]</sup></td> <td data-bbox="938 1585 1503 1624">Skin (Rodent - rabbit): 500mg - Mild</td> </tr> <tr> <td data-bbox="384 1624 938 1662"></td> <td data-bbox="938 1624 1503 1662">Skin: no adverse effect observed (not irritating)<sup>[1]</sup></td> </tr> </tbody> </table>	TOXICITY	IRRITATION	Dermal (rabbit) LD50: >2000 mg/kg <sup>[1]</sup>	Eye (Rodent - rabbit): 100uL/24H - Moderate	Inhalation(Rabbit) LC50; 2828 ppm4h <sup>[2]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>	Oral (Rabbit) LD50; 50 mg/kg <sup>[2]</sup>	Skin (Rodent - rabbit): 500mg - Mild		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
TOXICITY	IRRITATION										
Dermal (rabbit) LD50: >2000 mg/kg <sup>[1]</sup>	Eye (Rodent - rabbit): 100uL/24H - Moderate										
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Oral (Rabbit) LD50; 50 mg/kg <sup>[2]</sup>	Skin (Rodent - rabbit): 500mg - Mild										
	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>										
Legend:	<p>1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances</p>										

ACETONITRILE	<p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p>
Acetonitrile, UHPLC-MS & ACETONITRILE	<p>for acetonitrile:</p> <p><b>Pharmacokinetics</b></p> <p><b>Absorption</b> - Absorption of acetonitrile occurs after oral, dermal, or inhalation exposure. Although no quantitative absorption data were found for oral exposure, signs of acute toxicity, observed after oral exposure, indicate that absorption occurs In humans, 74% of acetonitrile was absorbed from cigarette smoke held in the mouth for 2 seconds; when inhaled into the lungs, absorption increased to 91% Dogs exposed by inhalation to 16,000 ppm for 4 hours appeared to reach steady-state blood concentrations within 3-4 hours.</p> <p><b>Distribution</b> - Acetonitrile and its metabolites are transported throughout the body in the blood . After oral or inhalation exposures to experimental animals, parent compound or metabolites were found in the brain, heart, liver, kidney, spleen, blood, stomach, and muscle After a fatal human inhalation exposure, metabolites were also found in those organs as well as skin, lungs, intestine, testes, and urine .</p> <p><b>Metabolism</b> - Acetonitrile is metabolised to hydrogen cyanide and thiocyanate which are responsible for the toxic effects of the chemical Metabolism is mediated by the cytochrome P-450 system</p>

## Acetonitrile, UHPLC-MS

**Excretion** - Acetonitrile is excreted as the parent chemical in expired air and as parent or metabolite in urine. Urinary excretion of thiocyanate following oral exposure in rats ranged from 11.8% (U.S. EPA 1985) to 37% of administered dose. Concentrations of acetonitrile of 2.2-20 microgram/100 mL of urine have been found for heavy smokers

**Acute Toxicity**

Acetonitrile liquid or vapor is irritating to the skin, eyes, and respiratory tract. At high enough doses, death can occur quickly from respiratory failure. Lower doses cause typical symptoms of cyanide poisoning such as salivation, nausea, vomiting, anxiety, confusion, hyperpnea, dyspnea, rapid pulse, unconsciousness, and convulsions.

**Humans** - Liquid or vapor acetonitrile is irritating to eyes, skin, nose, and throat. Concentrations of acetonitrile vapor up to 500 ppm cause irritation of mucous membranes. Volunteers were exposed to 40, 80, or 160 ppm for 4 hours; several hours after exposure one person had tightness of the chest after exposure to 40 ppm and another experienced flushing of the face and bronchial tightness after exposure to 160 ppm. The concentration of 160 ppm is roughly equivalent to a total of 19.5 mg/kg over the 4 hour period. One photographic laboratory worker died after "massive" exposure to acetonitrile vapor; gastric distress and nausea began about 4 hours after exposure followed by hypersalivation, conjunctivitis, low urine output, low blood pressure, albumin in urine and cerebrospinal fluid, coma, and death due to cardiac and respiratory failure. Similar signs and symptoms, including death, occurred in a worker painting the interior of a tank with a resin containing 30-40% acetonitrile.

**Animals** - Oral LD50 values for acetonitrile in the rat range from 2.46 to 6.5 g/kg. The 4-hour inhalation LC50 varies with species from 2828 ppm in the rabbit to 16,000 ppm in the rat; dermal LD50 values of 3.9 and 1.25 g/kg have been reported for the rabbit. Deaths occurred in dogs exposed by inhalation to 16,000 or 32,000 ppm; necropsy indicated pulmonary hemorrhage and vascular congestion.

**Subchronic/Chronic Toxicity**

Limited information was found on the adverse effects of long term human exposure to acetonitrile. Animals exposed chronically by inhalation have liver vacuolisation, cerebral hemorrhage, lung lesions including focal emphysema and proliferation of alveolar septa, and decreases in hematological parameters. EPA has derived an oral reference dose (RfD) of 0.006 mg/kg/day for acetonitrile, based on adverse blood effects observed in animal inhalation studies. Confidence in this RfD is low.

**Humans** - No information was found on the adverse effects of long term human exposure to acetonitrile. Chronic exposure to acetonitrile may cause headache, anorexia, dizziness, weakness, and macular, papular, or vesicular dermatitis.

**Animals** - Female mice exposed to 100, 200, or 400 ppm, 6 hours/day, 5 days/week for 90 days had thymic atrophy at the middle and high doses and hepatic vacuolisation at the high dose; dose-related decreases were observed in hematocrit, blood hemoglobin concentration, and erythrocyte and leucocyte counts. A no-observed-adverse effect level (NOAEL) for this study was 100 ppm (equivalent to 19.3 mg/kg/day). Based on these inhalation data the U.S. EPA calculated an oral reference dose for acetonitrile of 0.006 mg/kg/day. Similar hepatic and blood profile changes were observed in mice exposed to 200 or 400 ppm 6.5 hours/day, 5 days/week for 13 weeks. Rats exposed by inhalation to 166, 330, or 655 ppm acetonitrile 7 hours/day, 5 days/week for 90 days had a dose-responsive increase in the severity of lung lesions. Animals in the low and middle dose groups had "histiocytic clumps in alveoli, atelectasis, bronchitis or pneumonia"; high dose animals had alveolar congestion and focal edema, bronchial inflammation, desquamation, and excess mucus as well as swelling of the liver and kidneys and cerebral hemorrhage. Dogs and monkeys exposed to 350 ppm, 7 hours/day, 5 days/week for 91 days had pulmonary lesions including focal emphysema, atelectasis and proliferation of alveolar septa; transient depression in hematocrit and hemoglobin values also occurred in dogs, and brain hemorrhages were observed in monkeys. Male and female mice (groups of 10/sex) were exposed to 25, 50, 100, 200, or 400 ppm, 6 hours/day for 65 days. Decreased BUN, red blood cell counts, and hematocrit occurred in females exposed to the two highest doses, and increased liver weights were observed in males at 400 ppm and females at 100 and 200 ppm.

**Genotoxicity**

Acetonitrile was negative for mutations in Chinese hamster ovary cells and Salmonella strains TA98, TA100, TA1535, and TA1537 when assayed with or without metabolic activation. **Developmental/Reproductive Toxicity** Acetonitrile causes a dose-related increase in early resorptions and fetal death in hamsters, rats, and rabbits. Neural tube defects also occur in hamsters after a single oral or inhalation exposure during early gestation.

**Humans** - No information was found in the secondary sources searched regarding the developmental or reproductive toxicity of acetonitrile to humans.

**Animals** - Hamsters (6 to 12/group) were administered a single oral dose of acetonitrile of 100, 200, 300, or 400 mg/kg on day 8 of gestation. At the 2 highest doses, increases in exencephaly, encephalocoele, and rib malformations were observed; decreased fetal body weight occurred at all doses and an increase in resorptions occurred at 200 and 400 mg/kg. The same malformations occurred when hamsters were exposed by inhalation to 5000 or 8000 ppm for 1 hour on day 8 of gestation. An increase in early resorptions also occurred in rats receiving 375 mg/kg/day by gavage on gestation days 6-19; no adverse effects were observed at 200 mg/kg/day. Rabbits given 2, 15, or 30 mg/kg/day acetonitrile by gavage on gestation days 6-18 had an increase in fetal death at the highest dose. No effects in sperm motility and morphology or in vaginal cytology was observed in rats or mice exposed to 400 ppm, 6 hours/day, 5 days/week for 13 weeks.

**Neurotoxicity**

Exposure to high concentrations of acetonitrile causes death by respiratory failure and has been shown to cause brain lesions in animals.

**Humans** - The nervous system is a major target for acetonitrile acute toxicity. Acute exposure may cause salivation, nausea, vomiting, anxiety, confusion, hyperpnea, dyspnea, rapid pulse, unconsciousness, and convulsions followed by death from respiratory failure. Chronic exposure may cause headache, anorexia, dizziness, and weakness.

**Animals** - Acetonitrile inhalation caused cerebral hemorrhages in rats exposed to 655 ppm 7 hours/day, 5 days/week, for 90 days and monkeys exposed to 350 ppm 7 hours/day, 5 days/week, for 91 days.

Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

Endpoint	Test Duration (hr)	Species	Value	Source	
Acetonitrile, UHPLC-MS	EC50	72h	Algae or other aquatic plants	>1000mg/l	2
	EC50	48h	Crustacea	>1000mg/l	2
	NOEC(ECx)	24h	Crustacea	<0.001mg/L	4
	LC50	96h	Fish	>100mg/l	2

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. US EPA, Ecotox database - Aquatic Toxicity Data 4. ECETOC Aquatic Hazard Assessment Data 5. NITE (Japan) - Bioconcentration Data 6. METI (Japan) - Bioconcentration Data 7. Vendor Data

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and /or delayed, to the structure and/ or functioning of natural ecosystems.

Continued...

## Acetonitrile, UHPLC-MS

Soil Guidelines: Dutch Criteria:

free cyanide: 1 mg/kg (target)

20 mg/kg (intervention)

complex cyanide (pH 5): 5 mg/kg (target)

50 mg/kg (intervention)

Air Quality Standards: no safe guidelines recommended due to carcinogenic properties.

**DO NOT discharge into sewer or waterways.**

for acetonitrile:

log Kow : -0.34

Koc : 16

Half-life (hr) air : 12840-20640

Henry's atm m<sup>3</sup>/mol: 2.93E-05

BCF : 0.3

Log BCF : -0.34

Nitrification inhibition: nil at 100mg/L

**Abiotic Effects:** According to the definition provided in the U.S. Federal Register (1992), acetonitrile is a volatile organic compound (VOC) substance. As a VOC, acetonitrile can contribute to the formation of photochemical smog in the presence of other VOCs.

**Transport:** Acetonitrile is expected to adsorb weakly to soils as predicted by its KOC value; removal occurs primarily by volatilisation and leaching into groundwater. Volatilisation from surface waters is slow due to the high water solubility, moderate vapor pressure (91.1 mm Hg), and low Henry's law constant ( $3.46 \times 10^{-5}$  atm.m<sup>3</sup>/mole) of the chemical. The water solubility of acetonitrile suggests that dissolution into clouds and raindrops may occur leading to possible removal in rainfall (wet deposition).

**Air:** Acetonitrile is unlikely to undergo direct photolysis in air. Degradation occurs by reaction with hydroxyl radicals and ozone. Estimated half-lives for reaction with hydroxyl radicals range from 0.6 days to about 20 days. Reaction with ozone is slower with estimated half-lives of 54 days and 76.4 days.

It persists in the troposphere and may be transported over long distances.

**Soil:** In soil, the material undergoes aerobic biodegradation; it is expected to be mobile in soil and may evaporate from surface soils. Acetonitrile is removed from soil by microbial degradation. *Nocardia rhodochrus* LL100-21 and *Aeromonas* sp. BN 7013 isolated from soils are capable of utilising acetonitrile as a sole carbon and nitrogen source.

The chemical is enzymatically hydrolysed by a strain of the fungus *Fusarium solani*. Evaporation and leaching are also important in removing acetonitrile from soils

**Water:** Acetonitrile is removed from water by biodegradation, with decomposition occurring about five times faster following acclimation of the microorganisms. Decomposition of the chemical in the Ohio River (0.1 to 25 mg/L) was 20% in 5 days and 40% in 12 days. Degradation occurs by *Corynebacterium nitrilophilus* isolated from activated sludge.

Enzymatic hydrolysis is accomplished by *Pseudomonas* sp. capable of utilizing acetonitrile as a sole carbon source. Calculated volatilisation half-lives from a typical pond and river are 11 days and 6 days, respectively. Although slow, loss by volatilisation may become more important in shallow waters.

**Biota** - Based on the high water solubility and very low calculated bioconcentration factor (0.3) of acetonitrile, bioaccumulation in aquatic organisms is not expected to be significant

**Ecotoxicity:**

Acetonitrile has low acute toxicity to aquatic organisms; toxicity values are greater than 100 mg/L. The Fish LC50 (96 h): fathead minnow (*Pimephales promelas*) 1020 mg/l, 1000 mg/l (hard and soft water respectively); bluegill (*Lepomis macrochirus*) 1850 mg/l; guppy (*Lebistes reticulatus*) 1650 mg/l

Invertebrate EC50:520-7300 mg/l (inhibition of cellular multiplication)

Drinking Water Standards: none available.

Soil Guidelines: none available.

Air Quality Standards: none available.

#### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
acetonitrile	HIGH (Half-life = 360 days)	HIGH (Half-life = 541.29 days)

#### Bioaccumulative potential

Ingredient	Bioaccumulation
acetonitrile	LOW (BCF = 0.4)

#### Mobility in soil

Ingredient	Mobility
acetonitrile	LOW (Log KOC = 4.5)

#### Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

### SECTION 13 Disposal considerations

#### Waste treatment methods

Product / Packaging disposal	
	<ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> <li>▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> </ul> <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> <li>▶ Reduction</li> <li>▶ Reuse</li> <li>▶ Recycling</li> <li>▶ Disposal (if all else fails)</li> </ul> <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.</p> <ul style="list-style-type: none"> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> <li>▶ Recycle wherever possible.</li> </ul>

Continued...

## Acetonitrile, UHPLC-MS

- ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- ▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).
- ▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

## SECTION 14 Transport information

## Labels Required

	
Marine Pollutant	NO

Shipping container, transport vehicle placarding, and labeling may vary from the below information. This depends on the quantity shipped, the applicability of excepted quantity requirements, limited quantity requirements, and/or special provisions according to US DOT, IATA and IMDG regulations. In case of reshipment, it is the responsibility of the shipper to determine the appropriate labels and markings in accordance with applicable transport regulations.

## Land transport (DOT)

14.1. UN number or ID number	1648	
14.2. UN proper shipping name	Acetonitrile	
14.3. Transport hazard class(es)	Class	3
	Subsidiary Hazard	Not Applicable
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Hazard Label	3
	Special provisions	IB2, T7, TP2

## Air transport (ICAO-IATA / DGR)

14.1. UN number	1648	
14.2. UN proper shipping name	Acetonitrile	
14.3. Transport hazard class(es)	ICAO/IATA Class	3
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	3L
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	364
	Cargo Only Maximum Qty / Pack	60 L
	Passenger and Cargo Packing Instructions	353
	Passenger and Cargo Maximum Qty / Pack	5 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y341
	Passenger and Cargo Limited Maximum Qty / Pack	1 L

## Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1648	
14.2. UN proper shipping name	ACETONITRILE	
14.3. Transport hazard class(es)	IMDG Class	3
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	II	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-E, S-D
	Special provisions	Not Applicable
	Limited Quantities	1 L

## 14.7. Maritime transport in bulk according to IMO instruments

## 14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

## Acetonitrile, UHPLC-MS

Product name	Pollution Category	Ship Type
Acetonitrile	Z	3

## 14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
acetonitrile	Not Applicable

## 14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
acetonitrile	Not Applicable

## SECTION 15 Regulatory information

## Safety, health and environmental regulations / legislation specific for the substance or mixture

## acetonitrile is found on the following regulatory lists

US - California Hazardous Air Pollutants Identified as Toxic Air Contaminants  
 US - Massachusetts - Right To Know Listed Chemicals  
 US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Flammables  
 US - New Jersey Right to Know Hazardous Substances  
 US - Pennsylvania - Hazardous Substance List  
 US Clean Air Act - Hazardous Air Pollutants  
 US CWA (Clean Water Act) - Toxic Pollutants  
 US DOE Temporary Emergency Exposure Limits (TEELs)  
 US EPA Integrated Risk Information System (IRIS)  
 US EPCRA Section 313 Chemical List  
 US New York City Community Right-to-Know: List of Hazardous Substances  
 US NIOSH Recommended Exposure Limits (RELs)  
 US OSHA Permissible Exposure Limits (PELs) Table Z-1  
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory  
 US TSCA Section 4/12 (b) - Sunset Dates/Status

## Additional Regulatory Information

Not Applicable

## Federal Regulations

## Superfund Amendments and Reauthorization Act of 1986 (SARA)

## Section 311/312 hazard categories

Flammable (Gases, Aerosols, Liquids, or Solids)	Yes
Gas under pressure	No
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	Yes
Reproductive toxicity	No
Skin Corrosion or Irritation	No
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	No
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No
Hazards Not Otherwise Classified	No

## US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Continued...

## Acetonitrile, UHPLC-MS

Name	Reportable Quantity in Pounds (lb)	Reportable Quantity in kg
acetonitrile	5000	2270

**US. EPCRA Section 313 Toxic Release Inventory (TRI) (40 CFR 372)**

This product contains the following EPCRA section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know-Act of 1986 (40 CFR 372):

CAS No	%[weight]	Name
75-05-8	100	acetonitrile

*This information must be included in all SDSs that are copied and distributed for this material.*

**Additional Federal Regulatory Information**

Not Applicable

**State Regulations****US. California Proposition 65**

None Reported

**Additional State Regulatory Information**

Not Applicable

**National Inventory Status**

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (acetonitrile)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
UAE - Control List (Banned/Restricted Substances)	No (acetonitrile)
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

**SECTION 16 Other information**

<b>Revision Date</b>	07/10/2025
<b>Initial Date</b>	24/08/2025

**SDS Version Summary**

Version	Date of Update	Sections Updated
1.2	07/10/2025	Hazards identification - Classification, Identification of the substance / mixture and of the company / undertaking - Supplier Information

**Other information**

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

**Definitions and abbreviations**

- ▶ PC - TWA: Permissible Concentration-Time Weighted Average
- ▶ PC - STEL: Permissible Concentration-Short Term Exposure Limit
- ▶ IARC: International Agency for Research on Cancer
- ▶ ACGIH: American Conference of Governmental Industrial Hygienists
- ▶ STEL: Short Term Exposure Limit
- ▶ TEEL: Temporary Emergency Exposure Limit,
- ▶ IDLH: Immediately Dangerous to Life or Health Concentrations
- ▶ ES: Exposure Standard
- ▶ OSF: Odour Safety Factor
- ▶ NOAEL: No Observed Adverse Effect Level
- ▶ LOAEL: Lowest Observed Adverse Effect Level
- ▶ TLV: Threshold Limit Value
- ▶ LOD: Limit Of Detection
- ▶ OTV: Odour Threshold Value
- ▶ BCF: BioConcentration Factors

Continued...

**Acetonitrile, UHPLC-MS**

- ▶ BEI: Biological Exposure Index
- ▶ DNEL: Derived No-Effect Level
- ▶ PNEC: Predicted no-effect concentration
- ▶ MARPOL: International Convention for the Prevention of Pollution from Ships
- ▶ IMSBC: International Maritime Solid Bulk Cargoes Code
- ▶ IGC: International Gas Carrier Code
- ▶ IBC: International Bulk Chemical Code
  
- ▶ AIIIC: Australian Inventory of Industrial Chemicals
- ▶ DSL: Domestic Substances List
- ▶ NDSL: Non-Domestic Substances List
- ▶ IECSC: Inventory of Existing Chemical Substance in China
- ▶ EINECS: European INventory of Existing Commercial chemical Substances
- ▶ ELINCS: European List of Notified Chemical Substances
- ▶ NLP: No-Longer Polymers
- ▶ ENCS: Existing and New Chemical Substances Inventory
- ▶ KECI: Korea Existing Chemicals Inventory
- ▶ NZIoC: New Zealand Inventory of Chemicals
- ▶ PICCS: Philippine Inventory of Chemicals and Chemical Substances
- ▶ TSCA: Toxic Substances Control Act
- ▶ TCSI: Taiwan Chemical Substance Inventory
- ▶ INSQ: Inventario Nacional de Sustancias Químicas
- ▶ NCI: National Chemical Inventory
- ▶ FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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