SAFETY DATA SHEET

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 16-Jun-2009 **Revision Date** 13-Oct-2023 **Revision Number** 11

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	**Acetonitrile**
Cat No. :	**BP1170-4; BP1170-450**
Synonyms	AN; Methyl cyanide; Ethanenitrile
Index No	608-001-00-3
CAS No	75-05-8
EC No	200-835-2
Molecular Formula	C2 H3 N
REACH registration number	01-2119471307-38-0052

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

Recommended Use	Laboratory chemicals. See Annex for full list.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
Product category	PC21 - Laboratory chemicals
Process categories	see SECTION 16 for a complete list of uses for which an exposure scenario is provided as an annex
Environmental release category	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC7 - Industrial use of substances in closed systems ERC8a - Wide dispersive indoor use of processing aids in open systems
Uses advised against	SU21 - Consumer uses: Private households (= general public = consumers) REACH Annex XVII Restriction - refer to SECTION 15

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road,
Loughborough, Leicestershire LE11 5RG,
United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a, 2440 Geel,
Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

CHEMTREC®, Inside the USA: 800-424-9300

CHEMTREC®, Outside the USA: 001-703-527-3887
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Flammable liquids	Category 2 (H225)

Health hazards

Acute oral toxicity	Category 4 (H302)
Acute dermal toxicity	Category 4 (H312)
Acute Inhalation Toxicity - Vapors	Category 4 (H332)
Serious Eye Damage/Eye Irritation	Category 2 (H319)

Environmental hazards
Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Danger**

Hazard Statements
H225 - Highly flammable liquid and vapor
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled
H319 - Causes serious eye irritation

Precautionary Statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxicity to Soil Dwelling Organisms
Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Acetonitrile	75-05-8	200-835-2	>95	Flam. Liq. 2 (H225) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Eye Irrit. 2 (H319) Acute Tox. 4 (H332)

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Acetonitrile	ATE = 617 mg/kg	-	-

REACH registration number	01-2119471307-38-0052

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Inhalation Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Self-Protection of the First Aider Remove all sources of ignition. Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness,

nausea and vomiting: Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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

Notes to Physician Treat symptomatically. The effects may be delayed therefore medical observation is essential. Effects may be delayed 7 to 10 hours. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray. CO_2, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO_2).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Take precautionary measures against static discharges. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment as required.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Take precautionary measures against static discharges. Provide adequate ventilation. Use spark-proof tools and explosion-proof equipment. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Prevent product from entering drains.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Hygiene Measures
When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany) Class 3

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE -** 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Acetonitrile	STEL: 60 ppm 15 min STEL: 102 mg/m³ 15 min TWA: 40 ppm 8 hr TWA: 68 mg/m³ 8 hr	TWA: 40 ppm (8hr) TWA: 70 mg/m³ (8hr) Skin	TWA: 40 ppm 8 hr. TWA: 70 mg/m³ 8 hr. STEL: 120 ppm 15 min STEL: 310 mg/m³ 15 min Skin

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)
See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Acetonitrile 75-05-8 (>95)				DNEL = 32.2mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Acetonitrile 75-05-8 (>95)	DNEL = 40.6 ppm (68 mg/m³)	DNEL = 40.6 ppm (68 mg/m³)	DNEL = 40.6 ppm (68 mg/m³)	DNEL = 40.6 ppm (68 mg/m³)

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Acetonitrile 75-05-8 (>95)	PNEC = 10mg/L	PNEC = 7.53mg/kg sediment dw	PNEC = 10mg/L	PNEC = 32mg/L	PNEC = 2.41mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Acetonitrile 75-05-8 (>95)	PNEC = 1mg/L				

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	> 480 minutes	0.35 mm	EN 374 Level 6	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Neoprene gloves	< 60 minutes	0.45 mm		

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Colorless	
Odor	aromatic	
Odor Threshold	170 ppm	
Melting Point/Range	-46 °C / -50.8 °F	
Softening Point	No data available	
Boiling Point/Range	81 - 82 °C / 177.8 - 179.6 °F	@ 760 mmHg
Flammability (liquid)	Highly flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 3 vol % **Upper** 16 vol %	
Flash Point	12.8 °C / 55 °F	**Method -** No information available
Autoignition Temperature	525 °C / 977 °F	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	0.36 cP at 20 °C	
Water Solubility	Miscible	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
Acetonitrile	-0.34	
Vapor Pressure	97 mbar @ 20 °C	
Density / Specific Gravity	0.781	
Bulk Density	Not applicable	Liquid
Vapor Density	1.42	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C2 H3 N
Molecular Weight	41.05
Explosive Properties	Not explosive Vapors may form explosive mixtures with air
Oxidizing Properties	Not oxidising
Evaporation Rate	5.79 - (Butyl Acetate = 1.0)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	No information available.

10.4. Conditions to avoid

Incompatible products. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moisture.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Reducing Agent. Bases.

10.6. Hazardous decomposition products

Hydrogen cyanide (hydrocyanic acid). Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

Oral	Category 4
Dermal	Category 4
Inhalation	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetonitrile	450-787 mg/kg (Rat) 2460 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	LC50 = 3587 ppm (6.022 mg/l) (Mouse) 4h LC50 = 16,000 ppm (26.8 mg/l) (Rat) 4h

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Acetonitrile	ATE = 617 mg/kg	-	-

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory	Based on available data, the classification criteria are not met
Skin	Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects .

Component	Freshwater Fish	Water Flea	Freshwater Algae
Acetonitrile	LC50: = 1850 mg/L, 96h static (Lepomis macrochirus) LC50: = 1000 mg/L, 96h static (Pimephales promelas) LC50: 1600 - 1690 mg/L, 96h flow-through (Pimephales promelas) LC50: = 1650 mg/L, 96h static (Poecilia reticulata)		

Component	Microtox	M-Factor
Acetonitrile	EC50 = 28000 mg/L 48 h EC50 = 73 mg/L 24 h EC50 = 7500 mg/L 15 h	

12.2. Persistence and degradability

Persistence Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Acetonitrile	-0.34	No data available

12.4. Mobility in soil

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces Will likely be mobile in the environment due to its volatility. Disperses rapidly in air

12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN1648
14.2. UN proper shipping name	ACETONITRILE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

ADR

14.1. UN number	UN1648
14.2. UN proper shipping name	ACETONITRILE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

IATA

14.1. UN number	UN1648
14.2. UN proper shipping name	ACETONITRILE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Acetonitrile	75-05-8	200-835-2	-	-	X	X	KE-00067	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Acetonitrile	75-05-8	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Acetonitrile	75-05-8	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Acetonitrile	75-05-8	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Acetonitrile	WGK2	

Component	France - INRS (Tables of occupational diseases)
Acetonitrile	Tableaux des maladies professionnelles (TMP) - RG 84

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

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

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

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Chemical incident response training.

Creation Date	16-Jun-2009
Revision Date	13-Oct-2023
Revision Summary	Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Acetonitrile - Exposure Scenarios

CAS No	REACH registration number	EC No
75-05-8	01-2119471307-38-xxxx	203-726-8

Exposure Scenarios Overview

Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Manufacture of acetonitrile	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals	1, 2, 3, 4, 8a, 8b, 9	ERC1 - Manufacture of substances	ES1-M1 ACETONITRILE
Industrial use of acetonitrile	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals	1, 2, 3, 4, 8a, 8b, 9	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC7 - Industrial use of substances in closed systems	ES2-M2 ACETONITRILE
Pharmaceutical, fine chemical and active substance manufacture uses of acetonitrile	SU9 - Manufacture of fine chemicals	1, 2, 3, 4, 8a, 8b, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)	ES3-M3 ACETONITRILE
Formulation of preparations and/or re-packaging	SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)	3, 5, 9	ERC2 - Formulation of preparations	ES4-F1 ACETONITRILE
Laboratory use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	3, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES5-L1 ACETONITRILE

Exposure scenario

ES1 Manufacture of Acetonitrile - ES1-M1 ACETONITRILE

Section 1 - Identification of the use

Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites

Type Worker

Processes, tasks, activities covered Manufacture or use as an intermediate or process chemical or extraction agent. Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including

	drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental release category(ies)	ERC1 - Manufacture of substances

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	No information available
Water Solubility	Miscible
Vapor Pressure	97 mbar @ 20 °C
Volatility	High

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC1 - Manufacture of substances

Specific Environmental Release Category
ESVOC SpERC 1.1.v1

Control of environmental exposure
Readily biodegradable
Annual amount used in the EU 8500 t/a
Annual amount per site 1000 t/a (Worst case)

Environmental factors not influenced by risk management

Emission days	300
Receiving water dilution (fresh or marine)	2000 m3/d

Other operational conditions of use affecting environmental exposure

Emission days	300 (from ESVOC SPERC 1.1.v1)
Release fraction to wastewater from process (initial release prior to RMM)	1% (Specified by ESVOC 1.1.v1)
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements)	0.5% (Specified by ESVOC 1.1.v1)

Technical onsite conditions and measures to reduce or limit discharges, air emissions
Technical onsite conditions and measures to reduce or limit discharges, air emissions
Negligible air emissions as process operates in a contained system.
Additional good practice advice beyond the REACH Chemical Safety Report
Bund storage facilities to prevent soil and water pollution in the event of spillage. Ensure all waste water is collected and treated via a WWTP.

Conditions and measures related to municipal sewage treatment plant

Remarks	Manufacturing plants will have on-site waste water treatment facilities and emission to the municipal STP will not occur.

Waste management

Air	142 kg/day Based on ESVOC SPERC 1.1.v1 release factors
Water	283 kg/d Based on ESVOC SPERC 1.1.v1 release factors
Soil	0.01% ERC release factor

Conditions and measures related to external treatment of waste for disposal

Disposal	Waste resulting from on-site RMM to be disposed as chemical waste
Waste treatment methods	Municipal waste incineration

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard

Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation

Manufactured and processed at industrial sites in closed continuous processes with either no likelihood of exposure or with only occasional opportunity for exposure in contolled conditions e.g. during maintenance, sampling or discharge of the material. Transfer of the substance is conducted at dedicated facilities using a closed-system with vapour return. Respiratory protection is not required except for certain critical activities where respiratory protective equipment is used, for example, cleaning tanks or reactors. Measured dermal exposure data are not available.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Amounts used	>1000 t/y
Exposure duration	Avoid carrying out operation for more than 8h
Use frequency	220 days per year
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Use of closed transfers of liquids from storage to production equipment (e.g. metered piped or pumped additions) Sample via a closed loop or other system to avoid exposure
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Exposure duration	Avoid carrying out operation for more than 8h
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% (APF 10) Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training

health evaluation	Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices
	---
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 90% (APF 10) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices
	---
Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid carrying out operation for more than 1 hour Ensure operation is undertaken outdoors
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 95% (APF 20) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
	---
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
	---
Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Exposure duration	Avoid carrying out operation for more than 8h
Indoor/Outdoor use	Indoor use
Assumes process temperature up to	<=40°C
Minimum room ventilation rate for handling/application (air changes per hour)	1-3
Organisational measures to prevent /limit releases, dispersion and exposure	Fill containers/cans at dedicated fill points supplied with local extract ventilation
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)
ERC1 - Manufacture of substances

Specific Environmental Release Category - ESVOC SpERC 1.1.v1

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	10 mg/l	**Marine water**	1 mg/l
Fresh water sediment	45 mg/kg dw	**Marine water sediment**	4.5 mg/kg dw
Water Intermittent	10 mg/l	**Soil (Agriculture)**	2.41 mg/kg dw
Microorganisms in sewage treatment	32 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	2.22×10^{-4} mg/l	<0.01
Marine water	2.06×10^{-5} mg/l	<0.01
Freshwater sediment	8.5×10^{-4} mg/kg dw	<0.01
Marine sediment	8.02×10^{-5} mg/kg dw	<0.01
Soil	4.62×10^{-6} mg/kg dw	<0.01
Air	2.27×10^{-6} mg/m³	

Calculation method - EUSES 2.1

Remarks
No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment. All derived PECs are below the relevant PNEC and so no further assessment or refinements are required.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				32.2 mg/kg bw/day
Dermal				40.6 ppm
Inhalation	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	(68 mg/m³)

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative	0.012 mg/m³	<0.01
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative	12.0 mg/m³	0.179
	Worker - dermal	1.37 mg/kg bw/day	0.043
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative	29.9 mg/m³	0.447
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative	24.0 mg/m³	0.357
	Worker - dermal	6.86 mg/kg bw/day	0.214
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative	60.0 mg/m³	0.894
	Worker - dermal	12.0 mg/kg bw/day	0.429

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative	60.0 mg/m³	0.894
	Worker - dermal	6.86 mg/kg bw/day	0.214
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative	0.855 mg/m³	0.013
	Worker - dermal	6.86 mg/kg bw/day	0.021

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Acetonitrile - Exposure Scenarios

CAS No	REACH registration number	EC No
75-05-8	01-2119471307-38-xxxx	203-726-8

Exposure scenario

ES2 Industrial use of Acetonitrile - ES2-M2 ACETONITRILE

Section 1 - Identification of the use

Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites

Type Worker

Processes, tasks, activities covered Manufacture or use as an intermediate or process chemical or extraction agent. Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities

Sector(s) of use
SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 - Manufacture of fine chemicals

Process category(ies)
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Environmental release category(ies)
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b - Industrial use of reactive processing aids
ERC7 - Industrial use of substances in closed systems

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State Liquid
pH No information available
Water Solubility Miscible
Vapor Pressure 97 mbar @ 20 °C
Volatility High

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b - Industrial use of reactive processing aids

ERC7 - Industrial use of substances in closed systems

Specific Environmental Release Category
ESVOC SpERC 1.1.v1

Control of environmental exposure
Readily biodegradable
Regional use tonnage 1000 t/a
Annual site tonnage 1000 t/a
Fraction of EU tonnage used in region 1%
Fraction of regional tonnage used locally 1%

Other operational conditions of use affecting environmental exposure

Emission days	100
Release fraction to air from process (initial release prior to RMM)	**ERC6a** = 5% **ERC6b** = 0.1% **ERC7** = 5%
Release fraction to wastewater from process (initial release prior to RMM)	**ERC6a** = 2% **ERC6b** = 5% **ERC7** = 5%
Release fraction to soil from process (initial release prior to RMM)	**ERC6a** = 0.1% **ERC6b** = 0.025% **ERC7** = 5%
Remarks	ERC defaults

Conditions and measures related to municipal sewage treatment plant

Assumed on-site sewage treatment plant flow	2000m3/d
Sludge treatment	Controlled application to agricultural soil.

Waste management

Air	**ERC6a** = 500 kg/day **ERC6b** = 10 kg/day **ERC7** = 500 kg/day ERC release factor
Water	**ERC6a** = 200 kg/day **ERC6b** = 500 kg/day **ERC7** = 500 kg/day ERC release factor
Soil	**ERC6a** = 0.1% **ERC6b** = 0.025% **ERC7** = 5% ERC release factor

Regional exposure levels and environmental concentrations
Regional exposure for the use has been modelled using EUSES 2.1. No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment.

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard
Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation
Used in manufacturing processes which are either closed, continuous processes, or closed batch processes and in batch synthesis where some opportunity for exposure may arise. Respiratory protection is not required except for certain critical activities where respiratory protective equipment is used, for example, cleaning tanks or reactors. Local exhaust ventilation (LEV) usually required for indoor industrial use. Measured dermal exposure data are not available.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Amounts used	>1000 t/y
Exposure duration	Avoid carrying out operation for more than 8h
Use frequency	220 days per year
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Use of closed transfers of liquids from storage to production equipment (e.g. metered piped or pumped additions) Sample via a closed loop or other system to avoid exposure
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Exposure duration	Avoid carrying out operation for more than 8h
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% (APF 10) Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 90% (APF 10) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C

Organisational measures to prevent /limit releases, dispersion and exposure	Avoid carrying out operation for more than 1 hour Ensure operation is undertaken outdoors
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 95% (APF 20) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
	----------
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
	----------
Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Exposure duration	Avoid carrying out operation for more than 8h
Indoor/Outdoor use	Indoor use
Assumes process temperature up to	<=40°C
Minimum room ventilation rate for handling/application (air changes per hour)	1-3
Organisational measures to prevent /limit releases, dispersion and exposure	Fill containers/cans at dedicated fill points supplied with local extract ventilation
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%

Control of consumer exposure	Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b - Industrial use of reactive processing aids
ERC7 - Industrial use of substances in closed systems

Specific Environmental Release Category - ESVOC SpERC 1.1.v1

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	10 mg/l	**Marine water**	1 mg/l
Fresh water sediment	45 mg/kg dw	**Marine water sediment**	4.5 mg/kg dw
Water Intermittent	10 mg/l	**Soil (Agriculture)**	3.02 mg/kg dw
Microorganisms in sewage treatment	32 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	**ERC6a** = 1.24 mg/l	0.122
	ERC6b = 3.11 mg/l	0.304

	ERC7 = 3.11 mg/l	0.304
Marine water	**ERC6a** = 0.124 mg/l	0.122
	ERC6b = 0.311 mg/l	0.304
	ERC7 = 0.311 mg/l	0.304
Freshwater sediment	**ERC6a** = 5.48 mg/kg dw	0.122
	ERC6b = 13.7 mg/kg dw	0.304
	ERC7 = 13.7 mg/kg dw	0.304
Marine sediment	**ERC6a** = 0.548 mg/kg dw	0.122
	ERC6b = 1.37 mg/kg dw	0.304
	ERC7 = 1.37 mg/kg dw	0.304
Soil	**ERC6a** = 0.199 mg/kg dw	0.657
	ERC6b = 0.485 mg/kg dw	0.16
	ERC7 = 0.49 mg/kg dw	0.162
Municipal STP	**ERC6a** = 12.4 mg/l	0.388
	ERC6b = 31.1 mg/l	0.976
	ERC7 = 31.1 mg/l	0.97

Calculation method - EUSES 2.1

Remarks
All RCRs are less than 1, it is considered that safe use has been demonstrated. Atmospheric contamination is minimal, and as there is no indicated effects on plants or animals from the atmosphere, no PNEC/ RCR is derived.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				32.2 mg/kg bw/day
Dermal				40.6 ppm
Inhalation	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	(68 mg/m³)

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative	0.012 mg/m³	<0.01
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative	12.0 mg/m³	0.179
	Worker - dermal	1.37 mg/kg bw/day	0.043
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative	29.9 mg/m³	0.447
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative	24.0 mg/m³	0.357
	Worker - dermal	6.86 mg/kg bw/day	0.214
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative	60.0 mg/m³	0.894
	Worker - dermal	12.0 mg/kg bw/day	0.429
PROC8b - Transfer of substance or preparation (charging/discharging) from/to	Worker - inhalative	60.0 mg/m³	0.894

vessels/large containers at dedicated facilities			
	Worker - dermal	6.86 mg/kg bw/day	0.214
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative	0.855 mg/m³	0.013
	Worker - dermal	6.86 mg/kg bw/day	0.021

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Acetonitrile - Exposure Scenarios

CAS No	REACH registration number	EC No
75-05-8	01-2119471307-38-xxxx	203-726-8

Exposure scenario

ES3 Pharmaceutical, fine chemical and active substance manufacture uses of acetonitrile - ES3-M3 ACETONITRILE

Section 1 - Identification of the use

Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites

Type Worker

Processes, tasks, activities covered Manufacture or use as an intermediate or process chemical or extraction agent. Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities

Sector(s) of use SU9 - Manufacture of fine chemicals

Process category(ies)
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC15 - Use as laboratory reagent

Environmental release category(ies)
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State Liquid
pH No information available
Water Solubility Miscible
Vapor Pressure 97 mbar @ 20 °C
Volatility High

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category
ESVOC SpERC 1.1.v1

Control of environmental exposure
Readily biodegradable
Regional use tonnage 1000 t/a
Annual site tonnage 500 t/a
Fraction of EU tonnage used in region 1%
Fraction of regional tonnage used locally 0.1%

Other operational conditions of use affecting environmental exposure

Emission days	200
Release fraction to air from process (initial release prior to RMM)	**ERC4** = 100% **ERC6a** = 5%
Release fraction to wastewater from process (initial release prior to RMM)	**ERC4** = 100% **ERC6a** = 2%
Release fraction to soil from process (initial release prior to RMM)	**ERC4** = 5% **ERC6a** = 0.1%
Remarks	ERC defaults

Conditions and measures related to municipal sewage treatment plant

Assumed on-site sewage treatment plant flow	2000m3/d
Sludge treatment	Controlled application to agricultural soil.

Waste management

Air	**ERC4** = 2,500 kg/day **ERC6a** = 125kg/day ERC release factor
Water	**ERC4** = 2,500 kg/day **ERC6a** = 50 kg/day ERC release factor
Soil	**ERC4** = 5% **ERC6a** = 0.1% ERC release factor

Regional exposure levels and environmental concentrations
Regional exposure for the use has been modelled using EUSES 2.1. No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment.

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard
Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation
Used in manufacturing processes which are either closed, continuous processes, or closed batch processes and in batch synthesis where some opportunity for exposure may arise. Respiratory protection is not required except for certain critical activities where respiratory protective equipment is used, for example, cleaning tanks or reactors. Local exhaust ventilation (LEV) usually required for indoor industrial use. Measured dermal exposure data are not available.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Amounts used	>1000 t/y
Exposure duration	Avoid carrying out operation for more than 8h

Use frequency	220 days per year
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Use of closed transfers of liquids from storage to production equipment (e.g. metered piped or pumped additions) Sample via a closed loop or other system to avoid exposure
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Exposure duration	Avoid carrying out operation for more than 8h
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% (APF 10) Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 90% (APF 10) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid carrying out operation for more than 1 hour Ensure operation is undertaken outdoors
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 95% (APF 20) Wear chemically resistant gloves (tested to EN374) in combination with specific activity

	training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
	---
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
	---
Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	Avoid carrying out operation for more than 8h
Indoor/Outdoor use	Indoor use
Assumes process temperature up to	<=40°C
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices
	---
Control of consumer exposure	Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Specific Environmental Release Category - ESVOC SpERC 1.1.v1

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	10 mg/l	**Marine water**	1 mg/l
Fresh water sediment	45 mg/kg dw	**Marine water sediment**	4.5 mg/kg dw
Water Intermittent	10 mg/l	**Soil (Agriculture)**	3.02 mg/kg dw
Microorganisms in sewage treatment	32 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	**ERC4a** = 3.21 mg/l	0.315
	ERC6a = 0.311 mg/l	0.0305
Marine water	**ERC4** = 0.321 mg/l	0.315
	ERC6a = 0.0311 mg/l	0.0305
Freshwater sediment	**ERC4** = 14.2 mg/kg dw	0.315
	ERC6a = 1.37 mg/kg dw	0.0305
Marine sediment	**ERC4** = 1.42 mg/kg dw	0.315
	ERC6a = 0.137 mg/kg dw	0.0305

Soil	**ERC4** = 2.47 mg/kg dw **ERC6a** = 0.0509 mg/kg dw	0.818 0.0168
Municipal STP	**ERC4** = 32 mg/l **ERC6a** = 3.11 mg/l	1 0.097
Air	**ERC4** = 0.381 mg/m³ **ERC6a** = 0.0191 mg/m³	

Calculation method - EUSES 2.1

Remarks
All RCRs are less than 1, it is considered that safe use has been demonstrated. Atmospheric contamination is minimal, and as there is no indicated effects on plants or animals from the atmosphere, no PNEC/ RCR is derived.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				32.2 mg/kg bw/day
Dermal				40.6 ppm
Inhalation	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	(68 mg/m³)

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative	0.012 mg/m³	<0.01
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative	12.0 mg/m³	0.179
	Worker - dermal	1.37 mg/kg bw/day	0.043
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative	29.9 mg/m³	0.447
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative	24.0 mg/m³	0.357
	Worker - dermal	6.86 mg/kg bw/day	0.214
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative	60.0 mg/m³	0.894
	Worker - dermal	12.0 mg/kg bw/day	0.429
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative	60.0 mg/m³	0.894
	Worker - dermal	6.86 mg/kg bw/day	0.214
PROC15 - Use as laboratory reagent	Worker - inhalative	1.71 mg/m³	0.026
	Worker - dermal	0.0343 mg/kg bw/day	0.001

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Acetonitrile - Exposure Scenarios

CAS No	REACH registration number	EC No
75-05-8	01-2119471307-38-xxxx	203-726-8

Exposure scenario

ES4 Repackaging of Acetonitrile - ES4-F1 ACETONITRILE

Section 1 - Identification of the use

Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites

Type Worker

Processes, tasks, activities covered Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Sector(s) of use SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State Liquid
pH No information available
Water Solubility Miscible
Vapor Pressure 97 mbar @ 20 °C
Volatility High
Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC2 - Formulation of preparations (mixtures)

Specific Environmental Release Category
ESVOC SpERC 1.1.v1

Control of environmental exposure
Readily biodegradable
Annual site tonnage 5 t/a
Fraction of EU tonnage used in region 1%
Fraction of regional tonnage used locally 1%

Other operational conditions of use affecting environmental exposure

Emission days	20
Release fraction to air from process (initial release prior to RMM)	2.5%
Release fraction to wastewater from process (initial release prior to RMM)	2%
Release fraction to soil from process (initial release prior to RMM)	0.01%
Remarks	ERC defaults

Conditions and measures related to municipal sewage treatment plant

Assumed on-site sewage treatment plant flow	2000m3/d
Sludge treatment	Controlled application to agricultural soil.

Waste management

Air	6.25 kg/d ERC release factor
Water	5 kg/d ERC release factor

Regional exposure levels and environmental concentrations
Regional exposure for the use has been modelled using EUSES 2.1. No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment.

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard
Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation
Local exhaust ventilation (LEV) usually required for indoor industrial use. Measured dermal exposure data are not available.

Control of worker exposure

Covers concentrations up to	100%
Exposure duration	< 8 hour(s)
Indoor/Outdoor use	Indoor/Outdoor use
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Use engineering controls to keep exposures below the OEL or DNEL
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment
Environmental release category(ies)
ERC2 - Formulation of preparations (mixtures)

Specific Environmental Release Category - ESVOC SpERC 1.1.v1

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	10 mg/l	**Marine water**	1 mg/l
Fresh water sediment	45 mg/kg dw	**Marine water sediment**	4.5 mg/kg dw
Water Intermittent	10 mg/l	**Soil (Agriculture)**	3.02 mg/kg dw
Microorganisms in sewage treatment	32 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	0.0311 mg/l	3.04×10^{-3}
Marine water	3.11×10^{-3} mg/l	3.04×10^{-3}
Freshwater sediment	0.137 mg/l	3.04×10^{-3}
Marine sediment	0.0137 mg/l	3.04×10^{-3}
Soil	4.86×10^{-3} mg/kg dw	1.61×10^{-3}
Municipal STP	0.31 mg/l	9.7×10^{-3}

Calculation method - EUSES 2.1

Remarks
All RCRs are less than 1, it is considered that safe use has been demonstrated. Atmospheric contamination is minimal, and as there is no indicated effects on plants or animals from the atmosphere, no PNEC/ RCR is derived.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				32.2 mg/kg bw/day
Inhalation	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)	40.6 ppm (68 mg/m³)

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative Without LEV	42.8 mg/m³	0.638
	Worker - inhalative Without LEV/with RPE	4.28 mg/m³	0.064
	Worker - inhalative With LEV	8.55 mg/m³	0.128
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	Worker - inhalative Without LEV	171 mg/m³	2.55
	Worker - inhalative Without LEV/with RPE	17.1 mg/m³	0.255
	Worker - inhalative With LEV	34.2 mg/m³	0.511
	Worker - dermal	13.7 mg/kg bw/day	0.429
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative Without LEV	171 mg/m³	2.55
	Worker - inhalative Without LEV/with RPE	17.1 mg/m³	0.255
	Worker - inhalative With LEV	34.2 mg/m³	0.511
	Worker - dermal	6.86 mg/kg bw/day	0.214

Calculation method Used ECETOC TRA model

PROC 5 and 9 were found to exceed the DNEL for acute and long-term systemic effects and for acute and long-term local effects when performing tasks indoors without LEV and without respiratory protection

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Acetonitrile - Exposure Scenarios

CAS No	REACH registration number	EC No
75-05-8	01-2119471307-38-xxxx	203-726-8

Exposure scenario

ES5 Laboratory use of Acetonitrile - ES5-L1 ACETONITRILE

Section 1 - Identification of the use

Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites

Type Worker
Processes, tasks, activities covered Laboratory reagent and solvent involving transfer from larger to small containers and vice versa.

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
SU24 - Scientific research and development

Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State Liquid
pH No information available
Water Solubility Miscible
Vapor Pressure 97 mbar @ 20 °C
Volatility High
Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC8a - Wide dispersive indoor use of processing aids in open systems

Specific Environmental Release Category
ESVOC SpERC 8.17.v1

Control of environmental exposure
Readily biodegradable
Annual site tonnage 2000 t/a
Fraction of EU tonnage used in region 1%
Fraction of regional tonnage used locally 0.0005%

Other operational conditions of use affecting environmental exposure

Emission days	365
Release fraction to air from process (initial	50%

release prior to RMM)	
Release fraction to wastewater from process (initial release prior to RMM)	50%

Conditions and measures related to municipal sewage treatment plant

Assumed on-site sewage treatment plant flow	2000m3/d
Sludge treatment	Controlled application to agricultural soil.

Waste management

Air	1.37 kg/day ERC release factor
Water	1.37 kg/day ERC release factor
Soil	0.00 kg/d ERC release factor

Regional exposure levels and environmental concentrations
Regional exposure for the use has been modelled using EUSES 2.1. No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment.

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard
Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation
Local exhaust ventilation (LEV) usually required for indoor industrial use. Measured dermal exposure data are not available.

Control of worker exposure

Covers concentrations up to	100%
Exposure duration	< 8 hour(s)
Indoor/Outdoor use	Indoor use
Assumes process temperature up to	<=40°C
Technical conditions and measures to control dispersion from source towards the worker	Handle in an enclosing hood with exhaust ventilation
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

---

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment
Environmental release category(ies)
ERC8a - Wide dispersive indoor use of processing aids in open systems

Specific Environmental Release Category - ESVOC SpERC 8.17.v1

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	10 mg/l	**Marine water**	1 mg/l
Fresh water sediment	45 mg/kg dw	**Marine water sediment**	4.5 mg/kg dw
Water Intermittent	10 mg/l	**Soil (Agriculture)**	3.02 mg/kg dw
Microorganisms in sewage treatment	32 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)

Freshwater	0.0112 mg/l	1.1 $x10^{-3}$
Marine water	1.1 $x10^{-3}$ mg/l	1.09 $x10^{-3}$
Freshwater sediment	0.0107 mg/kg dw	1.09 $x10^{-3}$
Marine sediment	1.06 $x10^{-3}$ mg/kg dw	1.09 $x10^{-3}$
Soil	1.35 $x10^{-3}$ mg/kg dw	5.06 $x10^{-4}$
Municipal STP	0.0851 mg/l	2.66 $x10^{-3}$
Air	0.0381 mg/m^3	

Calculation method - EUSES 2.1

Remarks
All RCRs are less than 1, it is considered that safe use has been demonstrated. Atmospheric contamination is minimal, and as there is no indicated effects on plants or animals from the atmosphere, no PNEC/ RCR is derived.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				32.2 mg/kg bw/day
Dermal				40.6 ppm
Inhalation	40.6 ppm (68 mg/m^3)	40.6 ppm (68 mg/m^3)	40.6 ppm (68 mg/m^3)	(68 mg/m^3)

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative Without LEV	42.8 mg/m^3	0.638
	Worker - inhalative With LEV	8.55 mg/m^3	0.128
	Worker - dermal	0.343 mg/kg bw/day	0.011
PROC15 - Use as laboratory reagent	Worker - inhalative Without LEV	1.71 mg/m^3	0.255
	Worker - inhalative With LEV	3.42 mg/m^3	0.051
	Worker - dermal	0.0343 mg/kg bw/day	0.011

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users