Native PFAS Reference Standard

Novachem Pty Ltd

Chemwatch Hazard Alert Code: **3**

Version No: **1.1**
Safety Data Sheet according to Work Health and Safety Regulations (Hazardous Chemicals) 2023 and ADG requirements

Initial Date: **16/02/2026**
Revision Date: **16/02/2026**
Print Date: **16/02/2026**
S.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	Native PFAS Reference Standard
Synonyms	Not Available
Proper shipping name	METHANOL
Other means of identification	M-8327-10X

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

Relevant identified uses	Laboratory Chemical Reference Material

Details of the manufacturer or importer of the safety data sheet

Registered company name	**Novachem Pty Ltd**	**Novachem Pty Ltd**
Address	25 Crissane Road, Heidelberg West Victoria 3081 Australia	25 Crissane Road, Heidelberg West Victoria 3081 Australia
Telephone	+61384151255	+61384151255
Fax	+61386250088	+61386250088
Website	www.novachem.com.au	www.novachem.com.au
Email	novachem@novachem.com.au	novachem@novachem.com.au

Emergency telephone number

Association / Organisation	**Victorian Poisons Information Centre**	**Victorian Poisons Information Centre**
Emergency telephone number(s)	13 11 26	13 11 26
Other emergency telephone number(s)	Not Available	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

Poisons Schedule	Not Applicable
Classification [1]	Flammable Liquids Category 2, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2B, Acute Toxicity (Inhalation) Category 3, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, Reproductive Toxicity Category 1B, Specific Target Organ Toxicity - Single Exposure Category 1, Specific Target Organ Toxicity - Repeated Exposure Category 2
Legend:	***1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI***

Label elements

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

Page 1 continued...

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H320	Causes eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H360D	May damage the unborn child.
H370	Causes damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s) Prevention

P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor/physician/first aider.
P330	Rinse mouth.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

No further product hazard information.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
67-56-1	99.952	methanol
375-73-5	0.002	perfluorobutanesulfonic acid
2706-91-4	0.002	Perfluoropentanesulfonic acid
355-46-4	0.002	Perfluorohexanesulfonic acid
375-92-8	0.002	Perfluoroheptanesulfonic acid
1763-23-1	0.002	heptadecafluorooctanesulfonic acid
68259-12-1	0.002	sodium perfluorononanesulfonate
335-77-3	0.002	PFDS
757124-72-4	0.002	4:2 Fluorotelomer sulfonic acid
27619-97-2	0.002	fluorosulfonic acid, homopolymer
39108-34-4	0.002	1H,1H,2H,2H-perfluorodecanesulfonic acid
375-22-4	0.002	heptafluorobutyric acid
2706-90-3	0.002	nonafluoropentanoic acid
307-24-4	0.002	undecafluorohexanoic acid
375-85-9	0.002	tridecafluoroheptanoic acid
335-67-1	0.002	pentadecafluorooctanoic acid
375-95-1	0.002	heptadecafluorononanoic acid
335-76-2	0.002	nonadecafluorodecanoic acid
2058-94-8	0.002	perfluoroundecanoic acid
307-55-1	0.002	perfluorododecanoic acid
72629-94-8	0.002	perfluorotridecanoic acid
376-06-7	0.002	perfluorotetradecanoic acid
2991-50-6	0.002	N-ethylperfluorooctanesulfonamidoacetate
2355-31-9	0.002	N-methylperfluoro-1-octanesulfonamidoacetic acid
754-91-6	0.002	perfluorooctanesulfonamide

Legend:	***1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4.***

Continued...

Classification drawn from C&L; * EU IOELVs available

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Immediately hold eyelids apart and flush the eye continuously with running water. ▸ 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. ▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▸ Transport to hospital or doctor without delay. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ▸ Quickly but gently, wipe material off skin with a dry, clean cloth. ▸ Immediately remove all contaminated clothing, including footwear. ▸ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▸ Transport to hospital, or doctor.
Inhalation	▸ If fumes or combustion products are inhaled remove from contaminated area. ▸ Lay patient down. Keep warm and rested. ▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▸ 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. ▸ Transport to hospital, or doctor, without delay.
Ingestion	▸ **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.** ▸ For advice, contact a Poisons Information Centre or a doctor. ▸ Urgent hospital treatment is likely to be needed. ▸ 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. ▸ 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. ▸ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. **Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:** ▸ **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. **NOTE:** Wear a protective glove when inducing vomiting by mechanical means. ▸ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

For acute and short term repeated exposures to methanol:
· Toxicity results from accumulation of formaldehyde/formic acid.
· Clinical signs are usually limited to CNS, eyes and GI tract Severe metabolic acidosis may produce dyspnea and profound systemic effects which may become intractable. All symptomatic patients should have arterial pH measured. Evaluate airway, breathing and circulation.
· Stabilise obtunded patients by giving naloxone, glucose and thiamine.
· Decontaminate with Ipecac or lavage for patients presenting 2 hours post-ingestion. Charcoal does not absorb well; the usefulness of cathartic is not established.
· Forced diuresis is not effective; haemodialysis is recommended where peak methanol levels exceed 50 mg/dL (this correlates with serum bicarbonate levels below 18 mEq/L).
· Ethanol, maintained at levels between 100 and 150 mg/dL, inhibits formation of toxic metabolites and may be indicated when peak methanol levels exceed 20 mg/dL. An intravenous solution of ethanol in D5W is optimal.
· Folate, as leucovorin, may increase the oxidative removal of formic acid. 4-methylpyrazole may be an effective adjunct in the treatment. 8.Phenytoin may be preferable to diazepam for controlling seizure.

[Ellenhorn Barceloux: Medical Toxicology]

Methanol poisoning can be treated with fomepizole, or if unavailable, ethanol. Both drugs act to reduce the action of alcohol dehydrogenase on methanol by means of competitive inhibition. Ethanol, the active ingredient in alcoholic beverages, acts as a competitive inhibitor by more effectively binding and saturating the alcohol dehydrogenase enzyme in the liver, thus blocking the binding of methanol. Methanol is excreted by the kidneys without being converted into the very toxic metabolites formaldehyde and formic acid. Alcohol dehydrogenase instead enzymatically converts ethanol to acetaldehyde, a much less toxic organic molecule. Additional treatment may include sodium bicarbonate for metabolic acidosis, and hemodialysis or hemodiafiltration to remove methanol and formate from the blood. Folinic acid or folic acid is also administered to enhance the metabolism of formate.

BIOLOGICAL EXPOSURE INDEX - BEI

Determinant	Index	Sampling Time	Comment
1. Methanol in urine	15 mg/l	End of shift	B, NS
2. Formic acid in urine	80 mg/gm creatinine	Before the shift at end of workweek	B, NS

B: Background levels occur in specimens collected from subjects **NOT** exposed.
NS: Non-specific determinant - observed following exposure to other materials.

SECTION 5 Firefighting measures

Extinguishing media

Water may be an ineffective extinguishing media for methanol fires; static explosions are reported for aqueous solutions as dilute as 30%. Water may be used to cool containers.
- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

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

Advice for firefighters

Fire Fighting	
Fire/Explosion Hazard	▸ Liquid and vapour are highly flammable. ▸ Severe fire hazard when exposed to heat, flame and/or oxidisers. ▸ Vapour may travel a considerable distance to source of ignition.

Continued...

	▸ Heating may cause expansion or decomposition leading to violent rupture of containers. Combustion products include: ▸ carbon dioxide (CO_2) formaldehyde ▸ other pyrolysis products typical of burning organic material.
HAZCHEM	●2WE

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

Minor Spills	▸ Remove all ignition sources. ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. ▸ Control personal contact with the substance, by using protective equipment.
Major Spills	

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** allow clothing wet with material to stay in contact with skin
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.

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.
Storage incompatibility	Methanol: ▸ reacts violently with strong oxidisers, acetyl bromide, alkyl aluminium salts, beryllium dihydride, bromine, chromic acid, 1-chloro-3,3-difluoro-2-methoxycyclopropene, cyanuric chloride, diethylzinc, isophthaloyl chloride, nitric acid, perchloric acid, potassium-tert-butoxide, potassium sulfur diimide, Raney nickel catalysts, 2,4,6-trichlorotriazine, triethylaluminium, 1,3,3-trifluoro-2-methoxycyclopropene ▸ is incompatible with strong acids, strong caustics, alkaline earth and alkali metals, aliphatic amines, acetaldehyde, benzoyl peroxide, 1,3-bis(di-n-cyclopentadienyl iron)-2-propen-1-one, calcium carbide, chloroform, chromic anhydride, chromium trioxide, dialkylzinc, dichlorine oxide, dichloromethane, ethylene oxide, hypochlorous acid, isocyanates, isopropyl chlorocarbonate, lithium tetrahydroaluminate, magnesium, methyl azide, nitrogen dioxide, palladium, pentafluoroguanidine, perchloryl fluoride, phosphorus pentasulfide, phosphorus trioxide, potassium, tangerine oil, triisobutylaluminium ▸ mixtures with lead perchlorate, sodium hypochlorite are explosive ▸ may react with metallic aluminium at high temperatures ▸ slowly corrodes lead and aluminium ▸ may generate electrostatic charges, due to low conductivity, on flow or agitation ▸ attacks some plastics, rubber and coatings. Static induced flash fires have happened when filling plastic containers with methanol / water solutions with as low as 30% methanol content Alcohols ▸ are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents. ▸ reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen ▸ react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium ▸ should not be heated above 49 deg. C. when in contact with aluminium equipment ▸ Avoid storage with reducing agents.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December	heptadecafluorooctanesulfonic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available

Continued...

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
2026) - Appendix A - Workplace Exposure Limits						
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	fluorosulfonic acid, homopolymer	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	heptafluorobutyric acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	nonafluoropentanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	undecafluorohexanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	tridecafluoroheptanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	pentadecafluorooctanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	heptadecafluorononanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	nonadecafluorodecanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	perfluoroundecanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	perfluorododecanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	perfluorotetradecanoic acid	Fluorides and compounds	2.5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	methanol	Methyl alcohol	200 ppm / 262 mg/m3	328 mg/m3 / 250 ppm	Not Available	Not Available
Australia Workplace exposure limits for airborne contaminants (WEL list) (From 1 December 2026) - Appendix A - Workplace Exposure Limits	methanol	Methyl alcohol	100 ppm / 130 mg/m3	Not Available	Not Available	f The use, handling and storage of this chemical is subject to restriction or prohibition (see regulations 340, 380 - 384 and Schedule 10 to the model WHS Regulations).

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.
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]

Continued...

	▸ 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.
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.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ PVC Apron. ▸ PVC protective suit may be required if exposure severe. ▸ Eyewash unit. ▸ 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.

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:
Native PFAS Reference Standard

Material	CPI
BUTYL	A
BUTYL/NEOPRENE	A
PE/EVAL/PE	A
PVDC/PE/PVDC	A
SARANEX-23	A
SARANEX-23 2-PLY	A
TEFLON	A
VITON/NEOPRENE	A
NEOPRENE	B
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
PVA	C
PVC	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.

Respiratory protection

Type BAX-P 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	BAX-AUS P2	-	BAX-PAPR-AUS / Class 1 P2
up to 50 x ES	-	BAX-AUS / Class 1 P2	-
up to 100 x ES	-	BAX-2 P2	BAX-PAPR-2 P2 ^

^ - 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(SO2), G = Agricultural chemicals, K = Ammonia(NH3), 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

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	AX-AUS / Class 1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+		-	Airline**

** - Continuous-flow or positive pressure demand.
A(All classes) = Organic vapours, B AUS or B1 = Acid gases, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 deg C)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Continued...

Appearance	Clear Liquid		
Physical state	Liquid	**Relative density (Water = 1)**	0.791
Odour	Not Available	**Partition coefficient n-octanol / water**	-0.77
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	385
pH (as supplied)	Not Available	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	-93.9	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	65	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	11	**Taste**	Not Available
Evaporation rate	5.9 BuAC = 1	**Explosive properties**	Not Available
Flammability	HIGHLY FLAMMABLE.	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	36.5	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	6.7	**Volatile Component (%vol)**	>99.9
Vapour pressure (kPa)	12.93	**Gas group**	Not Available
Solubility in water	Miscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	1.1	**VOC g/L**	Not Available
Heat of Combustion (kJ/g)	Not Available	**Ignition Distance (cm)**	Not Available
Flame Height (cm)	Not Available	**Flame Duration (s)**	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	**Enclosed Space Ignition Deflagration Density (g/m3)**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▸ Static induced flash fires have happened when filling plastic containers with methanol / water solutions with as low as 30% methanol content. ▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

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

Inhaled	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. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Minor but regular methanol exposures may effect the central nervous system, optic nerves and retinae. Symptoms may be delayed, with headache, fatigue, nausea, blurring of vision and double vision. Continued or severe exposures may cause damage to optic nerves, which may become severe with permanent visual impairment even blindness resulting. **WARNING**: Methanol is only slowly eliminated from the body and should be regarded as a cumulative poison which cannot be made non-harmful [***CCINFO***]
Ingestion	**Toxic effects** may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual. Methanol may produce a burning or painful sensation in the mouth, throat, chest, and stomach. This may be accompanied by nausea, vomiting, headache, dizziness, shortness of breath, weakness, fatigue, leg cramps, restlessness, confusion, drunken behaviour, visual disturbance, drowsiness, coma and death. 60-200 ml of methanol is a fatal dose for most adults with as little as 10 ml producing blindness. In massive overdose, liver, kidney, heart and muscle injury have been described.
Skin Contact	Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

Continued...

	The material may accentuate any pre-existing dermatitis condition Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions 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. There is strong evidence to suggest that this material, on a single contact with skin, can cause serious, irreversible damage of organs. There is some evidence to suggest that the material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye	Methanol is a mild to moderate eye irritant. High vapor concentration or liquid contact with eyes causes irritation, tearing, and burning. Direct contact of the eye with ethanol may cause immediate stinging and burning with reflex closure of the lid and tearing, transient injury of the corneal epithelium and hyperaemia of the conjunctiva. There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.
Chronic	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Long-term exposure to methanol vapour, at concentrations exceeding 3000 ppm, may produce cumulative effects characterised by gastrointestinal disturbances (nausea, vomiting), headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, conjunctivitis and clouded or double vision. Liver and/or kidney injury may also result.

Native PFAS Reference Standard

TOXICITY	IRRITATION
Not Available	Not Available

perfluorobutanesulfonic acid

TOXICITY	IRRITATION
Oral (Rat) LD50: 430 mg/kg[2]	Eye: adverse effect observed (irreversible damage)[1]
	Skin: adverse effect observed (corrosive)[1]
	Skin: adverse effect observed (irritating)[1]

Perfluoropentanesulfonic acid

TOXICITY	IRRITATION
Not Available	Not Available

Perfluorohexanesulfonic acid

TOXICITY	IRRITATION
Not Available	Not Available

Perfluoroheptanesulfonic acid

TOXICITY	IRRITATION
Not Available	Not Available

heptadecafluorooctanesulfonic acid

TOXICITY	IRRITATION
Oral (Rat) LD50: 154 mg/kg[2]	Not Available

sodium perfluorononanesulfonate

TOXICITY	IRRITATION
Not Available	Not Available

PFDS

TOXICITY	IRRITATION
Not Available	Not Available

4:2 Fluorotelomer sulfonic acid

TOXICITY	IRRITATION
Not Available	Not Available

fluorosulfonic acid, homopolymer

TOXICITY	IRRITATION
Oral (Rat) LD50: >300<2000 mg/kg[1]	Skin: adverse effect observed (corrosive)[1]

1H,1H,2H,2H-perfluorodecanesulfonic acid

TOXICITY	IRRITATION
Not Available	Not Available

heptafluorobutyric acid

TOXICITY	IRRITATION
Not Available	Not Available

nonafluoropentanoic acid

TOXICITY	IRRITATION
Not Available	Not Available

undecafluorohexanoic acid

TOXICITY	IRRITATION
Not Available	Not Available

Continued...

tridecafluoroheptanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

pentadecafluorooctanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

heptadecafluorononanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

nonadecafluorodecanoic acid	

TOXICITY	IRRITATION
Oral (Rat) LD50: 57 mg/kg[2]	Not Available

perfluoroundecanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

perfluorododecanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

perfluorotridecanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

perfluorotetradecanoic acid	

TOXICITY	IRRITATION
Not Available	Not Available

N-ethylperfluorooctanesulfonamidoacetate	

TOXICITY	IRRITATION
Not Available	Not Available

N-methylperfluoro-1-octanesulfonamidoacetic acid	

TOXICITY	IRRITATION
Not Available	Not Available

perfluorooctanesulfonamide	

TOXICITY	IRRITATION
Oral (Rat) LD50: >172 mg/kg[2]	Not Available

methanol	

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 15800 mg/kg[2]	Eye (Rodent - rabbit): 0.1mL
Inhalation (Rat) LC50: 64000 ppm4h[2]	Eye (Rodent - rabbit): 0.1mL - Severe
Oral (Rat) LD50: 5628 mg/kg[2]	Eye (Rodent - rabbit): 100mg/24H - Moderate
	Eye (Rodent - rabbit): 40mg - Moderate
	Eye: no adverse effect observed (not irritating)[1]
	Skin (Rodent - rabbit): 20mg/24H - Moderate
	Skin: no adverse effect observed (not irritating)[1]

Legend:	***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***

PERFLUOROBUTANESULFONIC ACID	.

A substance (or part of a group of chemical substances) of very high concern (SVHC) - or product containing an SVHC:
It is proposed that use within the European Union be subject to authorisation under the REACH Regulation.Indeed, listing of a substance as an SVHC by the European Chemicals Agency (ECHA) is the first step in the procedure for authorisation or restriction of use of a chemical.
The criteria are given in article 57 of the REACH Regulation. A substance may be proposed as an SVHC if it meets one or more of the following criteria:

- it is carcinogenic *;
- it is mutagenic *;
- it is toxic for reproduction *;
- it is persistent, bioaccumulative and toxic (PBT substances);
- it is very persistent and very bioaccumulative (vPvB substances);
- there is 'scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern'; such substances are identified on a case-by-case basis.

* Collectively described as CMR substances

Continued...

	The 'equivalent concern' criterion is significant because it is this classification which allows substances which are, for example, neurotoxic, endocrine-disrupting or otherwise present an unanticipated environmental health risk to be regulated under REACH] Simply because a substance meets one or more of the criteria does not necessarily mean that it will be proposed as an SVHC. Many such substances are already subject to restrictions on their use within the European Union, such as those in Annex XVII of the REACH Regulation SVHCs are substances for which the current restrictions on use (where these exist) might be insufficient.
PERFLUOROHEXANESULFONIC ACID	.. n humans, PFHxS binds to blood albumin,.] and relatively little PFHxS is found in the liver compared to longer chain PFASs such as PFOS.[The half-life of PFASs in human blood generally decreases with decreasing backbone (CF2) length. However, PFHxS is an unusual exception in that its half-life is greater than both longer and shorter chain equivalents such as PFOS or PFBS Data from the 2003-2004 National Health and Nutrition Examination Survey in the United States found the average serum concentration of PFHxS in the general US population to be 1.9 µg/L, with the 10th and 90th percentiles being 0.7 and 8.3 µg/L, respectively. Some studies reported serum PFHxS concentrations in the United States to be gradually decreasing since at least 1999.] Nevertheless, evidence of exposure can be detected amongst people with historic exposure. Serum concentrations of PFHxS were elevated amongst a cohort of Australian firefighters with occupational exposure to PFHxS (mean = 33 µg/L) compared to the general Australian population (mean = 3.2 µg/L), and were significantly correlated with serum PFOS concentrations.[13] As with PFOS, serum PFHxS concentrations are lower amongst women and people who reported blood donation. There is limited evidence for a relationship between PFHxS exposure and various health outcomes. However, contributions from PFHxS specifically are difficult to isolate, as most studies in humans and higher order organisms investigate exposure to a complex mixture of PFASs, of which PFHxS is just one component.
FLUOROSULFONIC ACID, HOMOPOLYMER	The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
PENTADECAFLUOROOCTANOIC ACID	**WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
NONADECAFLUORODECANOIC ACID	Paternal effects, effects on fertility, foetotoxicity, foetolethality recorded.
PERFLUORODODECANOIC ACID	Chronic PFDoA exposure disrupts testicular steroidogenesis and expression of related genes in male rats. Multiple factors may be involved in the inhibition of testosterone by PFDoA. PFDoA exposure resulted in significantly decreased protein levels of steroidogenic acute regulatory protein (StAR) and cholesterol side-chain cleavage enzyme (P450scc), along with significantly reduced mRNA levels of insulin-like growth factor I (IGF-I), insulin-like growth factor I receptor (IGF-IR), and interleukin 1alpha (IL-1alpha) in rat testes at 0.2 mg/kg/day and 0.5 mg/kg/day. In addition, PFDoA exposure also affected the expression of some genes in the hypothalamo-neurohypophyseal system. However, PFDoA did not affect the expression of 5alpha-reductase, 3alpha-hydroxysteroid dehydrogenase, or aromatase in testis and liver. The brain level of perfluorododecanoic acid (PFDoA) was compared with those of perfluorooctanoic acid (PFOA) and perfluorodecanoic acid (PFDA) in rats 9 days after a single oral dose (50?mg/kg). The PFDoA level in the brain was 44.0± 2.0 µg/g, which was higher than that in the serum (24.4 ± 1.0 µg/ml). In contrast, the concentrations of PFOA and PFDA in the brain were low (<0.8 and 4.7?± 0.4 µg/g, respectively), and less than one-tenth of those in the serum. Next, to investigate the effects on brain function, the cognitive function alterations of PFOA, PFDA, and PFDoA were estimated by the novel object recognition test 5?6 days after dosing.
PERFLUOROOCTANESULFONAMIDE	PFOSA is also a metabolic by-product of N-alkylated perfluorooctanesulfonamides.For example, N-ethyl perfluorooctanesulfonamidoethanol (N-EtFOSE), which was primarily used on paper, and N-methyl perfluorooctanesulfonamidoethanol (N-MeFOSE), which was primarily used on carpets and textiles, both metabolize via acetates to PFOSA. In addition, PFOSA is thought to be the biologically active form of the insecticide Sulfluramid (N-ethyl perfluorooctanesulfonamide) as it is an extremely potent uncoupler of oxidative phosphorylation with an IC50 of about 1 micromolar ?500 nanograms per milliliter or parts per billion). PFOSA was the most toxic perfluorinated compound in a study with PC12 cells.Concentrations ranged from 10 to 250 micromolar in the study (or 5000 to 125,000 parts per billion).
PERFLUOROBUTANESULFONIC ACID & PERFLUOROPENTANESULFONIC ACID & PERFLUOROHEPTANESULFONIC ACID & HEPTADECAFLUOROOCTANESULFONIC ACID & 4:2 FLUOROTELOMER SULFONIC ACID & FLUOROSULFONIC ACID, HOMOPOLYMER & HEPTAFLUOROBUTYRIC ACID & NONAFLUOROPENTANOIC ACID & UNDECAFLUOROHEXANOIC ACID & TRIDECAFLUOROHEPTANOIC ACID & PENTADECAFLUOROOCTANOIC ACID & NONADECAFLUORODECANOIC ACID & PERFLUOROUNDECANOIC ACID & PERFLUORODODECANOIC ACID & PERFLUOROTETRADECANOIC ACID & N-ETHYLPERFLUOROOCTANESULFONAMIDOACETATE & PERFLUOROOCTANESULFONAMIDE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.
PERFLUOROBUTANESULFONIC ACID & PERFLUOROPENTANESULFONIC ACID & HEPTADECAFLUOROOCTANESULFONIC ACID & 4:2 FLUOROTELOMER SULFONIC ACID & FLUOROSULFONIC ACID, HOMOPOLYMER & HEPTAFLUOROBUTYRIC ACID & NONAFLUOROPENTANOIC ACID & UNDECAFLUOROHEXANOIC ACID & TRIDECAFLUOROHEPTANOIC ACID & PENTADECAFLUOROOCTANOIC ACID	For acid mists, aerosols, vapours Test results suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airway from direct exposure to inhaled acidic mists (which also protects the stomach lining from the hydrochloric acid secreted there).
PERFLUOROBUTANESULFONIC ACID & PERFLUOROPENTANESULFONIC ACID & PERFLUOROHEXANESULFONIC ACID & PERFLUOROHEPTANESULFONIC ACID & HEPTADECAFLUOROOCTANESULFONIC ACID & SODIUM PERFLUORONONANESULFONATE & PFDS & FLUOROSULFONIC ACID, HOMOPOLYMER & 1H,1H,2H,2H-PERFLUORODECANESULFONIC ACID & N-ETHYLPERFLUOROOCTANESULFONAMIDOACETATE & N-METHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID & PERFLUOROOCTANESULFONAMIDE	For perfluorinated sulfonates: Studies involving C4 fluoroalkyl sulfonate (PFBS), the C8 fluoroalkyl sulfonate (PFOS) and the C8 fluorocarboxylic acid (PFOA) indicate that the chain length is an important factor in toxicity. Animal testing with PFOS and PFOA shows that the developing organism is a primary target, with increased mortality in offspring in the first few days of life; however, this effect was not noted with PFBS. In animals, PFOS and PFOA have been shown to cause cancer.

Continued...

SODIUM PERFLUORONONANESULFONATE & FLUOROSULFONIC ACID, HOMOPOLYMER & 1H,1H,2H,2H-PERFLUORODECANESULFONIC ACID & NONAFLUOROPENTANOIC ACID & UNDECAFLUOROHEXANOIC ACID & TRIDECAFLUOROHEPTANOIC ACID & HEPTADECAFLUORONONANOIC ACID & PERFLUOROUNDECANOIC ACID & PERFLUORODODECANOIC ACID & PERFLUOROTRIDECANOIC ACID & PERFLUOROTETRADECANOIC ACID & N-ETHYLPERFLUOROOCTANESULFONAMIDOACETATE & N-METHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID	No significant acute toxicological data identified in literature search.
FLUOROSULFONIC ACID, HOMOPOLYMER & HEPTAFLUOROBUTYRIC ACID & UNDECAFLUOROHEXANOIC ACID & TRIDECAFLUOROHEPTANOIC ACID & PENTADECAFLUOROOCTANOIC ACID	The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.
FLUOROSULFONIC ACID, HOMOPOLYMER & HEPTAFLUOROBUTYRIC ACID & TRIDECAFLUOROHEPTANOIC ACID & PENTADECAFLUOROOCTANOIC ACID & METHANOL	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.
HEPTAFLUOROBUTYRIC ACID & TRIDECAFLUOROHEPTANOIC ACID & PENTADECAFLUOROOCTANOIC ACID	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

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

Native PFAS Reference Standard

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

perfluorobutanesulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	5023mg/l	2
EC50	48h	Crustacea	1937mg/l	2
NOEC(ECx)	336h	Fish	0.109mg/L	4
EC50	96h	Algae or other aquatic plants	5733mg/l	2

Perfluoropentanesulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Perfluorohexanesulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	93h	Fish	22.5mg/l	4

Perfluoroheptanesulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

heptadecafluorooctanesulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	31.1-45.2mg/l	4
EC50	48h	Crustacea	14.72-21.18mg/l	4
NOEC(ECx)	24.5h	Fish	0.001mg/L	4
LC50	96h	Fish	60-82mg/l	4

sodium perfluorononanesulfonate

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Continued...

PFDS

Endpoint	Test Duration (hr)	Species	Value	Source

Continued...

	Not Available	Not Available	Not Available	Not Available	Not Available

4:2 Fluorotelomer sulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

fluorosulfonic acid, homopolymer

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	>96mg/l	2
EC50	48h	Crustacea	>109mg/l	2
NOEC(ECx)	2160h	Fish	2.62mg/l	2
LC50	96h	Fish	>107mg/l	2

1H,1H,2H,2H-perfluorodecanesulfonic acid

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

heptafluorobutyric acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48h	Crustacea	180.008-183.218mg/L	4
EC10(ECx)	48h	Algae or other aquatic plants	42-92mg/l	4
LC50	96h	Fish	>3000mg/l	4

nonafluoropentanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	81.7mg/l	4
EC50	48h	Crustacea	>112mg/l	4
EC50(ECx)	72h	Algae or other aquatic plants	81.7mg/l	4
LC50	96h	Fish	32mg/l	4

undecafluorohexanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	998.679mg/L	4
EC50	48h	Crustacea	802-1294mg/l	4
NOEC(ECx)	120h	Fish	0.063mg/L	4

tridecafluoroheptanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	516.965mg/L	4
EC50	48h	Crustacea	>1019.368mg/L	4
NOEC(ECx)	114h	Fish	23.3mg/L	4

pentadecafluorooctanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
BCF	672h	Fish	2-4.2	7
EC50	72h	Algae or other aquatic plants	63-130mg/l	4
EC50	48h	Crustacea	50.515-142.851mg/L	4
NOEC(ECx)	24h	Fish	<0.001mg/L	4
EC50	96h	Algae or other aquatic plants	44mg/l	4
LC50	96h	Fish	24.6mg/l	4

heptadecafluorononanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	129.942mg/L	4
EC50	48h	Crustacea	21.812-32.486mg/L	4
NOEC(ECx)	504h	Crustacea	0.008mg/l	4

nonadecafluorodecanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	10.6mg/l	4
EC50	48h	Crustacea	26.218-63.746mg/L	4
NOEC(ECx)	408h	Fish	0.01mg/l	4
LC50	96h	Fish	32mg/l	4

perfluoroundecanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	90h	Fish	0.056mg/L	4
EC50	48h	Crustacea	12.41-23.692mg/L	4

Continued...

perfluorododecanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	108.696-116.065mg/L	4
EC50	48h	Crustacea	20.879-49.742mg/L	4
NOEC(ECx)	336h	Fish	0.102mg/L	4

perfluorotridecanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	2880h	Fish	0.01mg/l	4

perfluorotetradecanoic acid

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	90.692-99.975mg/L	4
NOEC(ECx)	72h	Algae or other aquatic plants	17.853mg/L	4

N-ethylperfluorooctanesulfonamidoacetate

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

N-methylperfluoro-1-octanesulfonamidoacetic acid

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

perfluorooctanesulfonamide

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	240h	Fish	0.016mg/L	4

methanol

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48h	Crustacea	>10000mg/l	2
EC50	96h	Algae or other aquatic plants	14.11-20.623mg/l	4
NOEC(ECx)	720h	Fish	0.007mg/L	4
LC50	96h	Fish	290mg/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***

For short chain perfluorinated acids:
Perfluorinated carboxylic acids are known to be surface-active.The octanol-water partition coefficient parameter (KoW) is not considered to provide a reliable indicator of the partitioning behaviour of surface-active perfluorinated chemicals in the environment and has not been reported.
Measured water solubility values for these chemicals were not identified, although ammonium PFHxA is reported to be soluble. The measured water solubility of the long-chain homologue, perfluorooctanoic acid (PFOA), and its ammonium salt, are both high at the critical micelle concentration (>= 1000 mg/L). Based on these findings, it can be expected that all of the acids and salts in this group are readily soluble in water.
For Methanol: Log Kow: -0.82 to -0.66; Koc: 1; Henry s Law Constant: 4.55x10-6 atm-cu m/mole; Vapor Pressure: 127 mm Hg; BCF: < 10.
Atmospheric Fate: Methanol is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase methanol is broken down in the atmosphere by reactions with hydroxyl radicals; the half-life for this reaction in air is estimated to be 17 days.
Terrestrial Fate: Methanol is expected to have very high mobility in soil.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
perfluorobutanesulfonic acid	HIGH	HIGH
heptadecafluorooctanesulfonic acid	HIGH	HIGH
fluorosulfonic acid, homopolymer	HIGH	HIGH
heptafluorobutyric acid	HIGH	HIGH
nonafluoropentanoic acid	HIGH	HIGH
undecafluorohexanoic acid	HIGH	HIGH
tridecafluoroheptanoic acid	HIGH	HIGH
pentadecafluorooctanoic acid	HIGH	HIGH
heptadecafluorononanoic acid	HIGH	HIGH
nonadecafluorodecanoic acid	HIGH	HIGH
perfluoroundecanoic acid	HIGH	HIGH
perfluorododecanoic acid	HIGH	HIGH
perfluorotetradecanoic acid	HIGH	HIGH
methanol	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
perfluorobutanesulfonic acid	LOW (LogKOW = 2.4113)
Perfluoropentanesulfonic acid	LOW (LogKOW = 2.49)

Continued...

Ingredient	Bioaccumulation
Perfluorohexanesulfonic acid	LOW (LogKOW = 3.16)
Perfluoroheptanesulfonic acid	MEDIUM (LogKOW = 3.82)
heptadecafluorooctanesulfonic acid	MEDIUM (LogKOW = 4.49)
sodium perfluorononanesulfonate	HIGH (LogKOW = 5.16)
PFDS	HIGH (LogKOW = 5.83)
fluorosulfonic acid, homopolymer	MEDIUM (LogKOW = 3.8467)
1H,1H,2H,2H-perfluorodecanesulfonic acid	MEDIUM (LogKOW = 4)
heptafluorobutyric acid	LOW (LogKOW = 2.14)
nonafluoropentanoic acid	LOW (LogKOW = 3.4008)
undecafluorohexanoic acid	LOW (LogKOW = 3.48)
tridecafluoroheptanoic acid	MEDIUM (LogKOW = 4.15)
pentadecafluorooctanoic acid	LOW (BCF = 9.4)
heptadecafluorononanoic acid	HIGH (LogKOW = 5.48)
nonadecafluorodecanoic acid	HIGH (LogKOW = 6.15)
perfluoroundecanoic acid	HIGH (LogKOW = 6.82)
perfluorododecanoic acid	LOW (LogKOW = 7.49)
perfluorotridecanoic acid	LOW (LogKOW = 8.16)
perfluorotetradecanoic acid	LOW (LogKOW = 8.83)
N-ethylperfluorooctanesulfonamidoacetate	HIGH (LogKOW = 6.22)
perfluorooctanesulfonamide	HIGH (LogKOW = 5.8)
methanol	LOW (BCF = 10)

Mobility in soil

Ingredient	Mobility
perfluorobutanesulfonic acid	LOW (Log KOC = 221.6)
heptadecafluorooctanesulfonic acid	LOW (Log KOC = 1211)
fluorosulfonic acid, homopolymer	LOW (Log KOC = 15260)
heptafluorobutyric acid	LOW (Log KOC = 58.43)
nonafluoropentanoic acid	LOW (Log KOC = 269.9)
undecafluorohexanoic acid	LOW (Log KOC = 1247)
tridecafluoroheptanoic acid	LOW (Log KOC = 5761)
pentadecafluorooctanoic acid	LOW (Log KOC = 26620)
heptadecafluorononanoic acid	LOW (Log KOC = 123000)
nonadecafluorodecanoic acid	LOW (Log KOC = 568100)
perfluoroundecanoic acid	LOW (Log KOC = 2624000)
perfluorododecanoic acid	LOW (Log KOC = 12120000)
perfluorotetradecanoic acid	LOW (Log KOC = 258800000)
methanol	HIGH (Log KOC = 1)

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. Otherwise: ▸ 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. ▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product. 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. A Hierarchy of Controls seems to be common - the user should investigate: ▸ Reduction ▸ Reuse ▸ Recycling ▸ Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▸ Where in doubt contact the responsible authority. ▸ Recycle wherever possible. ▸ 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.

Continued...

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	●2WE

Land transport (ADG)

14.1. **UN number or ID number**	1230
14.2. **UN proper shipping name**	METHANOL
14.3. **Transport hazard class(es)**	Class: 3 Subsidiary Hazard: 6.1
14.4. **Packing group**	II
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: 279 Limited quantity: 1 L

Air transport (ICAO-IATA / DGR)

14.1. **UN number**	1230
14.2. **UN proper shipping name**	Methanol
14.3. **Transport hazard class(es)**	ICAO/IATA Class: 3 ICAO / IATA Subsidiary Hazard: 6.1 ERG Code: 3L
14.4. **Packing group**	II
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: A113 Cargo Only Packing Instructions: 364 Cargo Only Maximum Qty / Pack: 60 L Passenger and Cargo Packing Instructions: 352 Passenger and Cargo Maximum Qty / Pack: 1 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**	1230
14.2. **UN proper shipping name**	METHANOL
14.3. **Transport hazard class(es)**	IMDG Class: 3 IMDG Subsidiary Hazard: 6.1
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: 279 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

Not Applicable

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

Product name	Group
perfluorobutanesulfonic acid	Not Applicable
Perfluoropentanesulfonic acid	Not Applicable

Continued...

Product name	Group
Perfluorohexanesulfonic acid	Not Applicable
Perfluoroheptanesulfonic acid	Not Applicable
heptadecafluorooctanesulfonic acid	Not Applicable
sodium perfluorononanesulfonate	Not Applicable
PFDS	Not Applicable
4:2 Fluorotelomer sulfonic acid	Not Applicable
fluorosulfonic acid, homopolymer	Not Applicable
1H,1H,2H,2H-perfluorodecanesulfonic acid	Not Applicable
heptafluorobutyric acid	Not Applicable
nonafluoropentanoic acid	Not Applicable
undecafluorohexanoic acid	Not Applicable
tridecafluoroheptanoic acid	Not Applicable
pentadecafluorooctanoic acid	Not Applicable
heptadecafluorononanoic acid	Not Applicable
nonadecafluorodecanoic acid	Not Applicable
perfluoroundecanoic acid	Not Applicable
perfluorododecanoic acid	Not Applicable
perfluorotridecanoic acid	Not Applicable
perfluorotetradecanoic acid	Not Applicable
N-ethylperfluorooctanesulfonamidoacetate	Not Applicable
N-methylperfluoro-1-octanesulfonamidoacetic acid	Not Applicable
perfluorooctanesulfonamide	Not Applicable
methanol	Not Applicable

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
perfluorobutanesulfonic acid	Not Applicable
Perfluoropentanesulfonic acid	Not Applicable
Perfluorohexanesulfonic acid	Not Applicable
Perfluoroheptanesulfonic acid	Not Applicable
heptadecafluorooctanesulfonic acid	Not Applicable
sodium perfluorononanesulfonate	Not Applicable
PFDS	Not Applicable
4:2 Fluorotelomer sulfonic acid	Not Applicable
fluorosulfonic acid, homopolymer	Not Applicable
1H,1H,2H,2H-perfluorodecanesulfonic acid	Not Applicable
heptafluorobutyric acid	Not Applicable
nonafluoropentanoic acid	Not Applicable
undecafluorohexanoic acid	Not Applicable
tridecafluoroheptanoic acid	Not Applicable
pentadecafluorooctanoic acid	Not Applicable
heptadecafluorononanoic acid	Not Applicable
nonadecafluorodecanoic acid	Not Applicable
perfluoroundecanoic acid	Not Applicable
perfluorododecanoic acid	Not Applicable
perfluorotridecanoic acid	Not Applicable
perfluorotetradecanoic acid	Not Applicable
N-ethylperfluorooctanesulfonamidoacetate	Not Applicable
N-methylperfluoro-1-octanesulfonamidoacetic acid	Not Applicable
perfluorooctanesulfonamide	Not Applicable
methanol	Not Applicable

SECTION 15 Regulatory information

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

perfluorobutanesulfonic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Continued...

Australian Inventory of Industrial Chemicals (AIIC)

Perfluoropentanesulfonic acid is found on the following regulatory lists

Not Applicable

Perfluorohexanesulfonic acid is found on the following regulatory lists

Australia Industrial Chemicals Environmental Management (IChEMS Register) Instrument 2022 - Schedule 7 - Relevant industrial chemicals that are likely to cause serious or irreversible harm to the environment with no essential uses
Chemical Footprint Project - Chemicals of High Concern List
Stockholm Convention on Persistent Organic Pollutants - Annex A - Elimination

Perfluoroheptanesulfonic acid is found on the following regulatory lists

Not Applicable

heptadecafluorooctanesulfonic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Industrial Chemicals Environmental Management (IChEMS Register) Instrument 2022 - Schedule 7 - Relevant industrial chemicals that are likely to cause serious or irreversible harm to the environment with no essential uses
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans
Stockholm Convention on Persistent Organic Pollutants (POPs) - Annex B: Restriction
United Nations List of Prior Informed Consent Chemicals

sodium perfluorononanesulfonate is found on the following regulatory lists

Not Applicable

PFDS is found on the following regulatory lists

Not Applicable

4:2 Fluorotelomer sulfonic acid is found on the following regulatory lists

Not Applicable

fluorosulfonic acid, homopolymer is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

1H,1H,2H,2H-perfluorodecanesulfonic acid is found on the following regulatory lists

Not Applicable

heptafluorobutyric acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)

nonafluoropentanoic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)

undecafluorohexanoic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List

tridecafluoroheptanoic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)

pentadecafluorooctanoic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Industrial Chemicals Environmental Management (IChEMS Register) Instrument 2022 - Schedule 7 - Relevant industrial chemicals that are likely to cause serious or irreversible harm to the environment with no essential uses
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans
Stockholm Convention on Persistent Organic Pollutants - Annex A - Elimination
United Nations List of Prior Informed Consent Chemicals

heptadecafluorononanoic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Chemical Footprint Project - Chemicals of High Concern List

nonadecafluorodecanoic acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Chemical Footprint Project - Chemicals of High Concern List
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

perfluoroundecanoic acid is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List

perfluorododecanoic acid is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List

perfluorotridecanoic acid is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List

Continued...

perfluorotetradecanoic acid is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List

N-ethylperfluorooctanesulfonamidoacetate is found on the following regulatory lists

Not Applicable

N-methylperfluoro-1-octanesulfonamidoacetic acid is found on the following regulatory lists

Not Applicable

perfluorooctanesulfonamide is found on the following regulatory lists

Australia Industrial Chemicals Environmental Management (IChEMS Register) Instrument 2022 - Schedule 7 - Relevant industrial chemicals that are likely to cause serious or irreversible harm to the environment with no essential uses
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Chemical Footprint Project - Chemicals of High Concern List
Stockholm Convention on Persistent Organic Pollutants (POPs) - Annex B: Restriction
United Nations List of Prior Informed Consent Chemicals

methanol is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List

Additional Regulatory Information

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; heptadecafluorooctanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; 1H,1H,2H,2H-perfluorodecanesulfonic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
Canada - DSL	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; heptadecafluorooctanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; fluorosulfonic acid, homopolymer; 1H,1H,2H,2H-perfluorodecanesulfonic acid; heptafluorobutyric acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; pentadecafluorooctanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
Canada - NDSL	No (Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; heptadecafluorooctanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; 1H,1H,2H,2H-perfluorodecanesulfonic acid; pentadecafluorooctanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide; methanol)
China - IECSC	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid)
Europe - EINEC / ELINCS / NLP	No (sodium perfluorononanesulfonate; 4:2 Fluorotelomer sulfonic acid; N-methylperfluoro-1-octanesulfonamidoacetic acid)
Japan - ENCS	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluoroheptanesulfonic acid; PFDS; 4:2 Fluorotelomer sulfonic acid; heptafluorobutyric acid; nonafluoropentanoic acid; undecafluorohexanoic acid; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
Korea - KECI	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; PFDS; 4:2 Fluorotelomer sulfonic acid; 1H,1H,2H,2H-perfluorodecanesulfonic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
New Zealand - NZIoC	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; heptadecafluorooctanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; pentadecafluorooctanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
Philippines - PICCS	No (Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; heptadecafluorooctanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; fluorosulfonic acid, homopolymer; 1H,1H,2H,2H-perfluorodecanesulfonic acid; heptafluorobutyric acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid)
USA - TSCA	TSCA Inventory 'Active' substance(s) (perfluorobutanesulfonic acid; Perfluorohexanesulfonic acid; heptadecafluorooctanesulfonic acid; fluorosulfonic acid, homopolymer; heptafluorobutyric acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; pentadecafluorooctanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluorododecanoic acid; perfluorotetradecanoic acid; methanol); TSCA Inventory 'Inactive' substance(s) (Perfluoropentanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; N-ethylperfluorooctanesulfonamidoacetate); No (4:2 Fluorotelomer sulfonic acid; 1H,1H,2H,2H-perfluorodecanesulfonic acid; perfluoroundecanoic acid; perfluorotridecanoic acid; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
Taiwan - TCSI	No (Perfluoropentanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid)
Mexico - INSQ	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; fluorosulfonic acid, homopolymer; 1H,1H,2H,2H-perfluorodecanesulfonic acid; heptafluorobutyric acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; pentadecafluorooctanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)

Continued...

National Inventory	Status
Vietnam - NCI	No (Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
Russia - FBEPH	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; fluorosulfonic acid, homopolymer; 1H,1H,2H,2H-perfluorodecanesulfonic acid; nonafluoropentanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; perfluorooctanesulfonamide)
UAE - Control List (Banned/Restricted Substances)	No (perfluorobutanesulfonic acid; Perfluoropentanesulfonic acid; Perfluorohexanesulfonic acid; Perfluoroheptanesulfonic acid; sodium perfluorononanesulfonate; PFDS; 4:2 Fluorotelomer sulfonic acid; fluorosulfonic acid, homopolymer; 1H,1H,2H,2H-perfluorodecanesulfonic acid; heptafluorobutyric acid; nonafluoropentanoic acid; undecafluorohexanoic acid; tridecafluoroheptanoic acid; pentadecafluorooctanoic acid; heptadecafluorononanoic acid; nonadecafluorodecanoic acid; perfluoroundecanoic acid; perfluorododecanoic acid; perfluorotridecanoic acid; perfluorotetradecanoic acid; N-ethylperfluorooctanesulfonamidoacetate; N-methylperfluoro-1-octanesulfonamidoacetic acid; methanol)
Legend:	***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

Revision Date	16/02/2026
Initial Date	16/02/2026

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
- 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

- AIIC: 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

Powered by AuthorITe, from Chemwatch.