Safety Data Sheet

23 Mix perfluorinated internal standard in methanol/water

Version：V2.0.0.1
Report No.：BWQ0683-2016-MSDS-EP
Creation Date：2026/01/26
Revision Date：-

***Prepared in accordance with EU REACH Regulation (REACH 1907/2006 with amendment 2020/878)**

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

1.1 Product identifier

Product Name	23 Mix perfluorinated internal standard in methanol/water
Cat No.	BWQ0683-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

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

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

1.3 Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

1.4 Emergency telephone number

Emergency telephone number	010-58103678
Opening hours	24h

2 Hazards identification

2.1 CLP classification according to Regulation (EC) No. 1272/2008 with amendment 2023/707

According to Regulation (EC) No 1272/2008 and its amendments. Not classified as a dangerous substance.

2.2 Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

2.3 Other hazards

◆ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Heptafluorobutyric acid	Insufficient information, temporarily unable to evaluate
Perfluorovaleric acid	Insufficient information, temporarily unable to evaluate
Undecafluorohexanoic acid	Insufficient information, temporarily unable to evaluate
Pentadecafluorooctanoic acid	Insufficient information, temporarily unable to evaluate
Perfluorononan-1-oic acid	PBT/vPvB
Nonadecafluorodecanoic acid	PBT
Henicosafluoroundecanoic acid	Insufficient information, temporarily unable to evaluate
Tricosafluorododecanoic acid	Insufficient information, temporarily unable to evaluate
Pentacosafluorotridecanoic acid	Insufficient information, temporarily unable to evaluate
Heptacosafluorotetradecanoic acid	Insufficient information, temporarily unable to evaluate
Perfluoropalmitic acid	Insufficient information, temporarily unable to evaluate
Perfluorostearic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	Insufficient information, temporarily unable to evaluate
Heptadecafluorooctane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate

1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	Insufficient information, temporarily unable to evaluate
4,8-Dioxa-3H-perfluorononanoic acid	Insufficient information, temporarily unable to evaluate
Perfluoroheptanoic acid	Insufficient information, temporarily unable to evaluate
Methanol	Not PBT/vPvB
Water	Insufficient information, temporarily unable to evaluate

◆ Results of endocrine disrupting properties assessment

Component	Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]
Heptafluorobutyric acid	Insufficient information, temporarily unable to evaluate
Perfluorovaleric acid	Insufficient information, temporarily unable to evaluate
Undecafluorohexanoic acid	Insufficient information, temporarily unable to evaluate
Pentadecafluorooctanoic acid	Insufficient information, temporarily unable to evaluate
Perfluorononan-1-oic acid	Insufficient information, temporarily unable to evaluate
Nonadecafluorodecanoic acid	Insufficient information, temporarily unable to evaluate
Henicosafluoroundecanoic acid	Insufficient information, temporarily unable to evaluate
Tricosafluorododecanoic acid	Insufficient information, temporarily unable to evaluate
Pentacosafluorotridecanoic acid	Insufficient information, temporarily unable to evaluate
Heptacosafluorotetradecanoic acid	Insufficient information, temporarily unable to evaluate
Perfluoropalmitic acid	Insufficient information, temporarily unable to evaluate
Perfluorostearic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	Insufficient information, temporarily unable to evaluate
Heptadecafluorooctane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-	Insufficient information, temporarily unable to evaluate

pentadecafluoroheptane-1-sulphonic acid	
/	Insufficient information, temporarily unable to evaluate
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	Insufficient information, temporarily unable to evaluate
4,8-Dioxa-3H-perfluorononanoic acid	Insufficient information, temporarily unable to evaluate
Perfluoroheptanoic acid	Insufficient information, temporarily unable to evaluate
Methanol	Insufficient information, temporarily unable to evaluate
Water	Insufficient information, temporarily unable to evaluate

◆ Other

	Not applicable.

3 Composition/information on ingredients

3.1 Substance

	Not applicable

3.2 Mixture

Component	Weight % content(or range)	Classification according to Regulation (EC) No. 1272/2008 with amendment 2023/707 [CLP]	Specific Conc. Limits, M-factors
Heptafluorobutyric acid CAS : 375-22-4 EC : 206-786-3 Index No. : -	0.00053	Skin corrosion/irritation, Category 1A, H314; Serious eye damage/irritation, Category 1, H318	-
Perfluorovaleric acid CAS : 2706-90-3 EC : 220-300-7 Index No. : -	0.00053	Skin corrosion/irritation, Category 1B, H314	-
Undecafluorohexanoic acid CAS : 307-24-4 EC : 206-196-6 Index No. : -	0.00053	Skin corrosion/irritation, Category 1B, H314	-
Pentadecafluorooctanoic acid CAS : 335-67-1 EC : 206-397-9 Index No. : 607-704-00-2	0.00053	Acute Toxicity - Oral, Category 4, H302; Serious eye damage/irritation, Category 1, H318; Acute Toxicity - Inhalation, Category 4, H332; Carcinogenicity, Category 2, H351; Reproductive toxicity, Category 1B, H360; Reproductive Toxicity - effects on or via lactation, Additional, H362; Specific target organ toxicity - repeated exposure, Category 1, H372	-
Perfluorononan-1-oic acid CAS : 375-95-1 EC : 206-801-3 Index No. : 607-718-00-9	0.00053	Acute Toxicity - Oral, Category 4, H302; Serious eye damage/irritation, Category 1, H318; Acute Toxicity - Inhalation, Category 4, H332; Carcinogenicity, Category 2, H351; Reproductive toxicity, Category 1B, H360; Reproductive Toxicity - effects on or via lactation, Additional, H362; Specific target organ toxicity - repeated exposure,	-

		Category 1, H372	
Nonadecafluorodecanoic acid CAS : 335-76-2 EC : 206-400-3 Index No. : 607-720-00-X	0.00053	Carcinogenicity, Category 2, H351; Reproductive toxicity, Category 1B, H360; Reproductive Toxicity - effects on or via lactation, Additional, H362	-
Henicosafluoroundecanoic acid CAS : 2058-94-8 EC : 218-165-4 Index No. : -	0.00053	Acute Toxicity - Oral, Category 4, H302; Acute Toxicity - Dermal, Category 4, H312; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Acute Toxicity - Inhalation, Category 4, H332	-
Tricosafluorododecanoic acid CAS : 307-55-1 EC : 206-203-2 Index No. : -	0.00053	Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
Pentacosafluorotridecanoic acid CAS : 72629-94-8 EC : 276-745-2 Index No. : -	0.00053	Acute Toxicity - Oral, Category 4, H302; Serious eye damage/irritation, Category 1, H318; Acute Toxicity - Inhalation, Category 4, H332; Carcinogenicity, Category 2, H351; Reproductive toxicity, Category 1B, H360; Reproductive Toxicity - effects on or via lactation, Additional, H362; Specific target organ toxicity - repeated exposure, Category 1, H372	-
Heptacosafluorotetradecanoic acid CAS : 376-06-7 EC : 206-803-4 Index No. : -	0.00053	Not Classified	-
Perfluoropalmitic acid CAS : 67905-19-5 EC : 267-638-1 Index No. : -	0.00053	Not Classified	-
Perfluorostearic acid CAS : 16517-11-6 EC : 240-582-5 Index No. : -	0.00053	Not Classified	-
/ CAS : 83329-89-9 EC : / Index No. : -	0.00053	No information available	-
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate CAS : 1239355-46-4 EC : - Index No. : -	0.00053	Not Classified	-
Heptadecafluorooctane-1-sulphonic acid CAS : 1763-23-1 EC : 217-179-8 Index No. : 607-624-00-8	0.00053	Acute Toxicity - Oral, Category 4, H302; Acute Toxicity - Inhalation, Category 4, H332; Carcinogenicity, Category 2, H351; Reproductive toxicity, Category 1B, H360; Reproductive Toxicity - effects on or via lactation, Additional, H362; Specific target organ toxicity - repeated exposure, Category 1, H372; Hazardous to the aquatic environment - long-term (chronic) hazard, Category 2, H411	-
/ CAS : 2806-15-7	0.00053	No information available	-

EC : - Index No. : -			
/ CAS : 630402-22-1 EC : - Index No. : -	0.00053	No information available	-
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid CAS : 375-73-5 EC : 206-793-1 Index No. : -	0.00053	Corrosive to metals, Category 1, H290; Skin corrosion/irritation, Category 1, H314; Serious eye damage/irritation, Category 1, H318	-
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid CAS : 375-92-8 EC : 206-800-8 Index No. : -	0.00053	Acute Toxicity - Oral, Category 4, H302; Acute Toxicity - Dermal, Category 4, H312; Skin corrosion/irritation, Category 1B, H314; Acute Toxicity - Inhalation, Category 4, H332	-
/ CAS : 98789-57-2 EC : - Index No. : -	0.00053	No information available	-
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt CAS : 73606-19-6 EC : - Index No. : -	0.00053	No information available	-
4,8-Dioxa-3H-perfluorononanoic acid CAS : 919005-14-4 EC : 700-835-7 Index No. : -	0.00053	Corrosive to metals, Category 1, H290; Skin corrosion/irritation, Category 1A, H314; Serious eye damage/irritation, Category 1, H318	-
Perfluoroheptanoic acid CAS : 375-85-9 EC : 206-798-9 Index No. : 607-761-00-3	0.00053	Reproductive toxicity, Category 1B, H360; Specific target organ toxicity - repeated exposure, Category 1, H372	-
Methanol CAS : 67-56-1 EC : 200-659-6 Index No. : 603-001-00-X	48.5	Flammable liquids, Category 2, H225; Acute Toxicity - Oral, Category 3, H301; Acute Toxicity - Dermal, Category 3, H311; Acute Toxicity - Inhalation, Category 3, H331; Specific target organ toxicity - single exposure, Category 1, H370	H370:C ≥ 10%|H371:3% ≤ C < 10%
Water CAS : 7732-18-5 EC : 231-791-2 Index No. : -	51.48781	Not Classified	-

4 First-aid measures

4.1 Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.

Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

4.2 Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

4.3 Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Small fire: dry chemical, CO_2 or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
Unsuitable extinguishing media	Use of water spray when fighting fire may be inefficient.

5.2 Specific hazards arising from the substance or mixture

1	Will form explosive mixtures with air.
2	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/ or vapour concentration.
3	Vapours may travel to source of ignition and flash back.
4	Liquid and vapour are flammable.
5	Development of hazardous combustion gases or vapor possible in the event of fire.
6	May expansion or decompose explosively when heated or involved in fire.

5.3 Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapours and contacting with skin and eye.
2	Beware of vapours accumulating to form explosive concentrations.
3	Vapours can accumulate in low areas.
4	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5	Use personal protective equipment,do not breathe gas/mist/vapour/spray.

6	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
7	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

1	It is recommended that emergency personnel wear positive pressure self-contained breathing apparatus and wear anti-static clothing.
2	In case of small amount of spillage, use clean non sparking tools to collect absorption materials.
3	In case of large amount of spillage, construct cofferdam or dig a hole to collect the spillage. Use foam cover to reduce evaporation. Water spray mist can reduce evaporation, but can not reduce the flammability of the leakage in the restricted space.
4	Collect absorbent material using a clean, non-sparking tool.
5	Cover with anti-solvent foam to reduce evaporation.
6	Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
7	Water spray reduces evaporation but does not reduce the flammability of spills in confined spaces.
8	Cut off the source of the leak as much as possible.
9	Keep leaks in a ventilated place.
10	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
11	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
12	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.
13	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4 Reference to other sections

1	Personal Protective Equipment advice is contained in Section 8 of the SDS.
2	Disposal considerations advice is contained in Section 13 of the SDS.

7 Handling and storage

7.1 Precautions for safe handling

◆ Protective measures

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.

◆ Measures to prevent fire

1	Use only non-sparking tools.
2	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
3	Use explosion proof equipment.
4	Keep away from heat/sparks/open flames/ hot surfaces.

◆ Measures to prevent aerosol and dust generation

1	Not applicable.

◆ Advice on general occupational hygiene

1	Wash hands and face after using the substances.
2	Replace the contaminated clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

7.3 Specific end use(s)

1	In addition to use mentioned in the Section 1.2, unforeseen other specific end uses.

8 Exposure controls/personal protection

8.1 Control parameters

◆Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m³	ppm	mg/m³
Pentadecafluorooctanoic acid	Japan - JSOH(2024–2025)	-	0.005	-	-
	Permissible exposure standards for workers in the workplace	-	2.5 (as F)	-	5 (as F)
	Germany (DFG)	-	0.005	-	0.04
	Switzerland	-	0.005(inhalable aerosol)	-	0.04(inhalable aerosol)
	USA - ACGIH	-	2.5(as F)	-	-
Heptadecafluorooctane-1-sulphonic acid	Permissible exposure standards for workers in the workplace	-	2.5 (as F)	-	5 (as F)
	Germany (AGS)	-	0.01	-	0.08
	Germany (DFG)	-	0.01	-	0.08
	Sweden	200	900	300	1400
	Switzerland	-	0.01(inhalable aerosol)	-	0.08(inhalable aerosol)
	USA - ACGIH	-	2.5(as F)	-	-
Methanol	Japan - JSOH(2024–2025)	200	260	-	-
	Permissible exposure standards for workers in the workplace	200	262	250	327.5

	European Union	200	260	-	-
	France	200	260	-	-
	Germany (AGS)	100	130	200	260
	Germany (DFG)	100	130	200	260

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Pentadecafluorooctanoic acid	USA -ACGIH	Fluoride(Urine)	2mg/L	Prior to shift	
		Fluoride(Urine)	3mg/L	End of shift	
Heptadecafluorooctane-1-sulphonic acid	USA -ACGIH	Fluoride(Urine)	2mg/L	Prior to shift	
		Fluoride(Urine)	3mg/L	End of shift	
Methanol	USA -ACGIH	Methanol(Urine)	15mg/L	End of shift	

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 and GBZ/T 160 series standard Determination of toxic substances in workplace air.

◆ Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Heptafluorobutyric acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Perfluorovaleric acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Undecafluorohexanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Pentadecafluorooctanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Perfluorononan-1-oic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Nonadecafluorodecanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Henicosafluoroun	Inhalation	No data available	No data available	No data available	No data available

decanoic acid	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Tricosafluorododecanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Pentacosafluorotridecanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Heptacosafluorotetradecanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Perfluoropalmitic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Perfluorostearic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
/	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Heptadecafluorooctane-1-sulphonic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
/	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
/	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
1,1,2,2,3,3,4,4,5,5,6,6,7,7-pentadecafluoroheptane-1-	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available

sulphonic acid	Dermal	No data available	No data available	No data available	No data available
/	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
4,8-Dioxa-3H-perfluorononanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Perfluoroheptanoic acid	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Methanol	Inhalation	No data available	No data available	130 mg/m3	130 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Water	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

◆ Predicted No Effect Concentration (PNEC)

Component	A	B	C	D	E	F	G	H
Methanol	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No potential for bioaccumulation

Note 1:

A: Freshwater; B: Seawater; C: Sewage treatment plant; D: Sediment (freshwater); E: Sediment (seawater); F: Air; G: Soil; H: Secondary poisoning(Hazard for Predators).

Note 2:

The PNEC values of the remaining components not shown in the product are not available yet.

8.2 Exposure controls

8.2.1 Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

8.2.2 Personal protection equipment

General requirement	No special requirements, please see the description below.

Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.
Skin and body protection	In general situation, skin and body protection are not needed.

8.2.3 Environmental exposure controls

Environmental exposure controls	No information available

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	colorless liquid
Colour	colorless liquid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	-98 (Methanol)
Initial boiling point and boiling range(°C)	65 (Methanol)
Flash point(Closed cup,°C)	9 (Methanol)
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit：50 (Methanol)；Lower limit：6 (Methanol)
Vapor pressure	12.9 kPa (20°C,Methanol)
Vapor density(Air = 1)	1.1 (Methanol)
Relative density(Water=1)	0.79 (20°C,Methanol)
Solubility	Miscible with water (Methanol)
n-octanol/water partition coefficient	-0.74 (Methanol)
Auto-ignition temperature(°C)	440 (Methanol)
Decomposition temperature(°C)	No information available
Kinematic viscosity	0.544 mPa (25°C,Methanol)
Explosive properties	No information available
Oxidizing properties	No information available
Particle characteristics	Not applicable

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Information with regard to physical hazard classes	No information available

9.2.2 Other safety characteristics

Other safety characteristics	No information available

10 Stability and reactivity

Stability and reactivity

10.1 Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
10.2 Chemical stability	Stable under proper operation and storage conditions.
10.3 Possibility of hazardous reactions	In contact with oxidants causes severe reactions, and may cause a fire or explosion. In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen.
10.4 Conditions to avoid	Incompatible materials, heat, flame and spark.
10.5 Incompatible materials	Oxidants, alkali metals, alkaline earth metals and aluminum. Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 with amendment 2023/707

23 Mix perfluorinated internal standard in methanol/water	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Nonadecafluorodecanoic acid	57mg/kg(Rat)	No information available	No information available
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	430mg/kg(Rat)	No information available	No information available
Methanol	5628mg/kg(Rat)	15800mg/kg(Rabbit)	83.867mg/L(Rat)

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Heptafluorobutyric acid	Not Listed	Not Listed
Perfluorovaleric acid	Not Listed	Not Listed
Undecafluorohexanoic acid	Not Listed	Not Listed
Pentadecafluorooctanoic acid	Category 1	Not Listed

Perfluorononan-1-oic acid	Not Listed	Not Listed
Nonadecafluorodecanoic acid	Not Listed	Not Listed
Henicosafluoroundecanoic acid	Not Listed	Not Listed
Tricosafluorododecanoic acid	Not Listed	Not Listed
Pentacosafluorotridecanoic acid	Not Listed	Not Listed
Heptacosafluorotetradecanoic acid	Not Listed	Not Listed
Perfluoropalmitic acid	Not Listed	Not Listed
Perfluorostearic acid	Not Listed	Not Listed
/	Not Listed	Not Listed
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	Not Listed	Not Listed
Heptadecafluorooctane-1-sulphonic acid	Category 2B	Not Listed
/	Not Listed	Not Listed
/	Not Listed	Not Listed
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	Not Listed	Not Listed
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	Not Listed	Not Listed
/	Not Listed	Not Listed
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	Not Listed	Not Listed
4,8-Dioxa-3H-perfluorononanoic acid	Not Listed	Not Listed
Perfluoroheptanoic acid	Not Listed	Not Listed
Methanol	Not Listed	Not Listed
Water	Not Listed	Not Listed

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Component	Endocrine disrupting properties
Heptafluorobutyric acid	No information available
Perfluorovaleric acid	No information available
Undecafluorohexanoic acid	No information available
Pentadecafluorooctanoic	No information available

acid	
Perfluorononan-1-oic acid	No information available
Nonadecafluorodecanoic acid	No information available
Henicosafluoroundecanoic acid	No information available
Tricosafluorododecanoic acid	No information available
Pentacosafluorotridecanoic acid	No information available
Heptacosafluorotetradecanoic acid	No information available
Perfluoropalmitic acid	No information available
Perfluorostearic acid	No information available
/	No information available
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	No information available
Heptadecafluorooctane-1-sulphonic acid	No information available
/	No information available
/	No information available
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	No information available
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	No information available
/	No information available
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	No information available
4,8-Dioxa-3H-perfluorononanoic acid	No information available
Perfluoroheptanoic acid	No information available
Methanol	No information available
Water	No information available

11.2.2 Other Information

Other Information	See Section 11.1

12 Ecological information

12.1 Toxicity

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants

4,8-Dioxa-3H-perfluorononanoic acid	No information available	EC_{50} : > 100mg/L (48h)(Crustaceans)	ErC_{50} : > 100mg/L (96h)(Algae)
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	No information available	EC_{50} : 2183mg/L (48h)(Crustaceans)	ErC_{50} : 5661~5733mg/L (72h)(Algae)
Methanol	LC_{50} : 24000mg/L (96h)(Fish)	EC_{50} : 24500mg/L (48h)(Crustaceans)	No information available

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

12.2 Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Heptafluorobutyric acid	High	High
Pentadecafluorooctanoic acid	High	High
Heptadecafluorooctane-1-sulphonic acid	High	High
Methanol	Low	Low

12.3 Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Heptafluorobutyric acid	Low	Log Kow=2.4347
Pentadecafluorooctanoic acid	Low	BCF=9.4
Heptadecafluorooctane-1-sulphonic acid	High	Log Kow=6.2757
Methanol	Low	BCF=10

12.4 Mobility in soil

Component	log Koc	Remark
Heptafluorobutyric acid	1.767	
Pentadecafluorooctanoic acid	4.425	
Heptadecafluorooctane-1-sulphonic acid	3.083	
4,8-Dioxa-3H-perfluorononanoic acid	≤1.3	
Methanol	0.000	

12.5 Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Heptafluorobutyric acid	Insufficient information, temporarily unable to evaluate
Perfluorovaleric acid	Insufficient information, temporarily unable to evaluate
Undecafluorohexanoic acid	Insufficient information, temporarily unable to evaluate

Pentadecafluorooctanoic acid	Insufficient information, temporarily unable to evaluate
Perfluorononan-1-oic acid	PBT/vPvB
Nonadecafluorodecanoic acid	PBT
Henicosafluoroundecanoic acid	Insufficient information, temporarily unable to evaluate
Tricosafluorododecanoic acid	Insufficient information, temporarily unable to evaluate
Pentacosafluorotridecanoic acid	Insufficient information, temporarily unable to evaluate
Heptacosafluorotetradecanoic acid	Insufficient information, temporarily unable to evaluate
Perfluoropalmitic acid	Insufficient information, temporarily unable to evaluate
Perfluorostearic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	Insufficient information, temporarily unable to evaluate
Heptadecafluorooctane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	Insufficient information, temporarily unable to evaluate
/	Insufficient information, temporarily unable to evaluate
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	Insufficient information, temporarily unable to evaluate
4,8-Dioxa-3H-perfluorononanoic acid	Insufficient information, temporarily unable to evaluate
Perfluoroheptanoic acid	Insufficient information, temporarily unable to evaluate
Methanol	Not PBT/vPvB
Water	Insufficient information, temporarily unable to evaluate

12.6 Endocrine disrupting properties

Component	Endocrine disrupting properties
Heptafluorobutyric acid	No information available
Perfluorovaleric acid	No information available
Undecafluorohexanoic acid	No information available
Pentadecafluorooctanoic acid	No information available

Perfluorononan-1-oic acid	No information available
Nonadecafluorodecanoic acid	No information available
Henicosafluoroundecanoic acid	No information available
Tricosafluorododecanoic acid	No information available
Pentacosafluorotridecanoic acid	No information available
Heptacosafluorotetradecanoic acid	No information available
Perfluoropalmitic acid	No information available
Perfluorostearic acid	No information available
/	No information available
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	No information available
Heptadecafluorooctane-1-sulphonic acid	No information available
/	No information available
/	No information available
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	No information available
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	No information available
/	No information available
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	No information available
4,8-Dioxa-3H-perfluorononanoic acid	No information available
Perfluoroheptanoic acid	No information available
Methanol	No information available
Water	No information available

12.7 Other adverse effects

	No information available

13 Disposal considerations

13.1 Waste treatment methods

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	

IMDG-CODE

14.1 UN number	1993
14.2 UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
14.3 Transport hazard class	3
14.4 Packing group	Ⅱ
14.5 Environmental hazards (Yes or no)	No

IATA-DGR

14.1 UN number	1993
14.2 UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
14.3 Transport hazard class	3
14.4 Packing group	Ⅱ
14.5 Environmental hazards (Yes or no)	No

UN-ADR

14.1 UN number	1993
14.2 UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
14.3 Transport hazard class	3
14.4 Packing group	Ⅱ
14.5 Environmental hazards (Yes or no)	No

Special precautions for user

	Shipment of the goods vehicle exhaust pipe must be equipped with fire retardant devices, prohibit using mechanical equipment and tools of which easy to produce sparks. Transit should be anti-exposure, anti-rain, anti-high temperature. Transportation used tank (tank) cars should be grounded chain, tank can be installed to reduce the partition hole static electricity shocks. Strictly prohibited shipping or transportation with oxidants, acids, food and food additives etc. When bulk transport, Prohibit the use of cement or wooden boats. Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.

Maritime transport in bulk according to IMO instruments

◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available

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

	Not Available

◆Transport in bulk in accordance with the IGC Code

	Not Available

15 Regulatory information

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

International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
Heptafluorobutyric acid	√	√	√	×	√	×	√	√	×	×	×	√	√
Perfluorovaleric acid	×	√	√	×	×	×	√	√	×	×	×	√	√
Undecafluorohexanoic acid	×	√	√	×	×	×	√	√	×	×	×	√	√
Pentadecafluorooctanoic acid	√	√	√	×	×	√	√	√	√	×	×	√	√
Perfluorononan-1-oic acid	×	√	√	×	×	×	×	×	√	×	×	√	√
Nonadecafluorodecanoic acid	×	√	√	×	×	×	×	×	√	×	×	√	√
Henicosafluoroundecanoic acid	×	√	×	×	×	×	×	×	√	×	×	√	√
Tricosafluorododecanoic acid	×	√	√	×	×	×	×	×	√	×	×	√	√
Pentacosafluorotridecanoic acid	×	√	×	×	×	×	×	×	√	×	×	√	√
Heptacosafluorotetradecanoic acid	×	√	√	×	×	×	×	×	√	×	×	√	√
Perfluoropalmitic acid	×	√	√	×	×	×	×	×	√	×	×	√	×
Perfluorostearic acid	×	√	√	×	×	×	×	×	×	×	×	√	×
/	×	×	×	×	×	×	×	×	×	×	×	×	×
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	×	×	×	×	×	×	×	×	×	×	×	×	×
Heptadecafluorooctane-1-sulphonic acid	√	√	√	×	×	×	√	×	√	×	√	√	√
/	×	×	×	×	×	×	×	×	×	×	×	×	×
/	×	×	×	×	×	×	×	×	×	×	×	×	×
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	×	√	√	×	×	√	×	√	×	×	×	√	√
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	×	√	√	×	×	×	×	×	×	×	×	√	×
/	×	×	×	×	×	×	×	×	×	×	×	×	×
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	×	×	×	×	×	×	×	×	×	×	×	×	×
4,8-Dioxa-3H-perfluorononanoic acid	×	×	×	×	×	×	×	×	×	×	×	√	×
Perfluoroheptanoic acid	×	√	√	×	×	×	√	√	√	×	×	√	√
Methanol	√	√	√	√	√	√	√	√	√	√	√	√	√

Water	√	√	√	√	√	√	√	√	√	√	√	√	√

【A】 China Inventory of Existing Chemical Substances(IECSC)
【B】 European Inventory of Existing Commercial Chemical Substances(EC inventory)
【C】 United States Toxic Substances Control Act Inventory(TSCA)
【D】 Canadian Domestic Substances List(DSL)
【E】 New Zealand Inventory of Chemicals(NZIoC)
【F】 Philippines Inventory of Chemicals and Chemical Substances(PICCS)
【G】 Korea Existing Chemicals Inventory(KECL)
【H】 Australian. Inventory of Industrial Chemical (AIICS)
【I】 Japan Inventory of Existing & New Chemical Substances(ENCS)
【J】 Thailand Existing Chemicals Inventory(TECI)
【K】 Mexico National Inventory of Chemical Substances (INSQ)
【L】 Russia Inventory of Existing Substances (DRAFT)
【M】 Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

List of Chemical Substances under International Conventions

Component	A	B	C
Heptafluorobutyric acid	×	×	×
Perfluorovaleric acid	×	×	×
Undecafluorohexanoic acid	×	×	×
Pentadecafluorooctanoic acid	×	√	√
Perfluorononan-1-oic acid	×	×	×
Nonadecafluorodecanoic acid	×	×	×
Henicosafluoroundecanoic acid	×	×	×
Tricosafluorododecanoic acid	×	×	×
Pentacosafluorotridecanoic acid	×	×	×
Heptacosafluorotetradecanoic acid	×	×	×
Perfluoropalmitic acid	×	×	×
Perfluorostearic acid	×	×	×
/	×	×	×
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	×	×	×
Heptadecafluorooctane-1-sulphonic acid	×	√	√
/	×	×	×
/	×	×	×
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	×	×	×
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	×	×	×
/	×	×	×
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroe	×	×	×

thanesulfonic acid,potassium salt			
4,8-Dioxa-3H-perfluorononanoic acid	×	×	×
Perfluoroheptanoic acid	×	×	×
Methanol	×	×	×
Water	×	×	×

【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer
【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)
【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

European chemical inventory

Component	A	B	C	D	E	F	G	H	I
Heptafluorobutyric acid	×	×	×	√	×	×	×	×	×
Perfluorovaleric acid	×	×	×	√	×	×	×	×	×
Undecafluorohexanoic acid	×	×	√	√	×	×	×	×	×
Pentadecafluorooctanoic acid	√	×	√	√	×	×	×	√	√
Perfluorononan-1-oic acid	√	×	√	√	×	×	×	×	×
Nonadecafluorodecanoic acid	√	×	√	√	×	×	×	×	×
Henicosafluoroundecanoic acid	√	×	√	√	×	×	×	×	×
Tricosafluorododecanoic acid	√	×	√	√	×	×	×	×	×
Pentacosafluorotridecanoic acid	√	×	√	√	×	×	×	×	×
Heptacosafluorotetradecanoic acid	√	×	√	√	×	×	×	×	×
Perfluoropalmitic acid	×	×	×	√	×	×	×	×	×
Perfluorostearic acid	×	×	×	√	×	×	×	×	×
/	×	×	×	×	×	×	×	×	×
(R)-1-tert-Butyl 2-methyl aziridine-1,2-dicarboxylate	×	×	×	×	×	×	×	×	×
Heptadecafluorooctane-1-sulphonic acid	×	×	√	√	×	×	√	×	×
/	×	×	×	×	×	×	×	×	×
/	×	×	×	×	×	×	×	×	×
1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid	√	×	×	√	√	×	×	×	×
1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoroheptane-1-sulphonic acid	×	×	×	√	×	×	×	×	×

/	×	×	×	×	×	×	×	×	×
2-[(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyl)oxyl]-1,1,2,2-tetrafluoroethanesulfonic acid,potassium salt	×	×	×	×	×	×	×	×	×
4,8-Dioxa-3H-perfluorononanoic acid	×	×	×	×	√	×	×	×	×
Perfluoroheptanoic acid	√	×	×	√	×	×	×	×	×
Methanol	×	×	√	√	√	√	×	×	×
Water	×	×	×	√	×	×	×	×	×

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation
[B] Substances requiring authorisation under EU REACH regulation
[C] Substances restricted under EU REACH
[D] Pre-registered substances under EU REACH
[E] Registered substances under EU REACH
[F] Substance Evaluation – CoRAP under EU REACH
[G] List of priority substances under EU water policy （Directive 2455/2001/EC）
[H] Substances subject to POPs Regulation
[I] Substances proposed as POPs

Note:
"√" Indicates that the substance included in the regulations.
"×" No data or not included in the regulations.

German water hazard class(WGK)

Component	WGK	Remark
Pentadecafluorooctanoic acid	WGK 3	
Henicosafluoroundecanoic acid	WGK 3	
Tricosafluorododecanoic acid	WGK 3	
Pentacosafluorotridecanoic acid	WGK 3	
Heptacosafluorotetradecanoic acid	WGK 3	
Methanol	WGK 2	

【WGK 1】 slightly hazardous to water
【WGK 2】 obviously hazardous to water
【WGK 3】 highly hazardous to water
【nwg】 non-hazardous to water
【awg】 hazardous to water in general

German technical instructions on air quality control(TA LUFT)

Component	TA LUFT	Remark
Pentadecafluorooctanoic acid	Chapter 5.2.7.1.3 Substances toxic to reproductionMass flow: 2,5 g/hr or Mass conc.: 1 mg/m³	
Perfluorononan-1-oic acid	Chapter 5.2.7.1.3 Substances toxic to reproductionMass flow: 2,5 g/hr or Mass conc.: 1 mg/m³	
Nonadecafluorodecanoic acid	Chapter 5.2.7.1.3 Substances toxic to reproductionMass flow: 2,5 g/hr or Mass conc.: 1 mg/m³	

Heptadecafluorooctane-1-sulphonic acid	Chapter 5.2.7.1.3 Substances toxic to reproductionMass flow: 2,5 g/hr or Mass conc.: 1 mg/m³	
Perfluoroheptanoic acid	Chapter 5.2.7.1.3 Substances toxic to reproductionMass flow: 2,5 g/hr or Mass conc.: 1 mg/m³	
Methanol	Chapter 5.2.5 Organic Substances, class I. The following values are in all not allowed to be exceeded in the exhaust gas:Mass flow:0,10 kg/hr or Mass conc.:20 mg/m³	

German technical rules for hazardous substances(TRGS)

Component	TRGS	Remark
Pentadecafluorooctanoic acid	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 560	
Perfluorononan-1-oic acid	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 560	
Nonadecafluorodecanoic acid	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 560	
Heptadecafluorooctane-1-sulphonic acid	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510	
Perfluoroheptanoic acid	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800	
Methanol	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Water	TRGS 500|TRGS 509|TRGS 510	

15.2 Chemical safety assessment

	No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

16 Other information

Information on revision

Creation Date	2026/01/26
Revision Date	-
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home.
[2] IARC, website: http://www.iarc.fr/.

[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/.
[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple.
[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp.
[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/.
[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg.
[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program
EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to REACH Regulation The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.