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

1.1. Product identifier

Product form : Mixture

Name : Solstice® N40 (R-448A)

Product code : 100144800

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Refrigerant

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Dehon Service SAS
26 Avenue du Petit Parc
94683 VINCENNES Cedex - France
T 01 43 98 75 00 - F 01 43 98 21 51
ContactFDS@climalife.dehon.com

Other

Climalife Hongrie Kft
Rét u. 2
2040 Budaörs - Hungary
T 00 36 23 431 660 - F 00 36 23 431 661
ContactFDS@climalife.dehon.com

Other

Climalife Kft Budepesta sucurcala Bucuresti Romania
Bulevardul Hristo Botev, Nr. 28,
Biroul NR 4, Modulul I
Bucuresti Sectorul 3 - Romania
ContactFDS@climalife.dehon.com

Other

Climalife Supplied by Inventec Performance Chemicals Italia SRL
Via del Lavoro, 10/G
20874 Busnago MB - Italia
T +39 39-5973480 - F +39 39-5973490
ContactFDS@climalife.dehon.com

Other

Dehon Kälte-Fachvertriebs GmbH
Robert-Bosch-Strasse 14
40668 MEERBUSCH - Germany
T 00 49 2150 7073 0 - F 00 49 2150 7073 17
ContactFDS@climalife.dehon.com

Other

Dehon nordic service
Östra Hamngatan 50B 3tr
41109 GÖTEBORG - Sweden
T 00 46 44 21 58 80 - F 00 46 44 21 58 80
ContactFDS@climalife.dehon.com

Other

Dehon Service Belgium s.a/n.v.
Avenue Carton de Wiart, 79
1090 Bruxelles - Belgium
T 00 32 2 421 01 70 - F 00 32 2 426 96 62
ContactFDS@climalife.dehon.com

Other

Dehon Service Nerderland B.V.
Van Konijnenburgweg 84
NL-4612 PL Bergen Op Zoom - Netherlands
T 00 31 164 212 830 - F 00 31 164 212 831
ContactFDS@climalife.dehon.com

Other

Friogas sa
Poligono Industrial SEPES
Parcela 10
46500 SAGUNTO (Valencia) - Spain
T 00 34 9 6 266 36 32 - F 00 34 9 6 266 50 25
ContactFDS@climalife.dehon.com

Other

IDS Refrigeration Limited
Green Court, Kings Weston Lane
Avonmouth
BS11 8AZ Bristol - United Kingdom
T 00 44 1179 802520 - F 00 44 1179 802521
ContactFDS@climalife.dehon.com

Other

Prochimac SA
Rue du Château 10
CH-2000 NEUCHATEL - Switzerland
T 00 41 32 727 36 00 - F 00 41 32 727 36 19
ContactFDS@climalife.dehon.com

1.4. Emergency telephone number

Emergency number : +33 (0) 1 72 11 00 03

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Press. Gas (Liq.) H280

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Contact with the liquid may cause frostbite and serious damage to eyes.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS04

Signal word (CLP) : Warning

Hazard statements (CLP) : H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP) : P410+P403 - Protect from sunlight. Store in a well-ventilated place.

Extra phrases : Greenhouse fluorinated gas falling within Kyoto Protocol (GWP=1 387).

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Pentafluoroethane substance with a Community workplace exposure limit substance with national workplace exposure limit(s) (CZ, SE)	(CAS-No.) 354-33-6 (EC-No.) 206-557-8 (REACH-no) 01-2119485636-25	26	Press. Gas (Liq.), H280
Difluoromethane substance with a Community workplace exposure limit substance with national workplace exposure limit(s) (CZ)	(CAS-No.) 75-10-5 (EC-No.) 200-839-4 (REACH-no) 01-2119471312-47	26	Flam. Gas 1, H220 Press. Gas (Liq.), H280
1,1,1,2-Tetrafluoroethane	(CAS-No.) 811-97-2 (EC-No.) 212-377-0 (REACH-no) 01-2119459374-33	21	Press. Gas (Liq.), H280
2,3,3,3-Tetrafluoroprop-1-ene substance with a Community workplace exposure limit substance with national workplace exposure limit(s) (DE)	(CAS-No.) 754-12-1 (EC-No.) 468-710-7 (REACH-no) 01-0000019665-61	20	Flam. Gas 1, H220 Press. Gas (Liq.), H280
Trans-1,3,3,3-Tetrafluoroprop-1-ene substance with a Community workplace exposure limit	(CAS-No.) 29118-24-9 (EC-No.) 471-480-0 (REACH-no) 01-0000019758-54	7	Press. Gas (Liq.), H280

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Move the affected person away from the contaminated area and into the fresh air. If you feel unwell, seek medical advice.

First-aid measures after skin contact : In the event of contact with the liquid: treat resulting frostbite as a burn. Immediately remove contaminated clothing or footwear. Immediately rinse with plenty of water. If skin burns appear, call a doctor immediately.

First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Consult an eye specialist immediately.

First-aid measures after ingestion : Not specifically applicable (gas).

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

Symptoms/effects : CNS depression. Narcosis. Cardiac disorders. Lack of oxygen: risk of death.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : All extinguishing agents can be used.

Unsuitable extinguishing media : None to our knowledge. If there is a fire close by, use suitable extinguishing agents.

5.2. Special hazards arising from the substance or mixture

Explosion hazard : pressure rise and possible bursting of container. On heating : Toxic and corrosive vapours are released.

Hazardous decomposition products in case of fire : Thermal decomposition generates : Carbon oxides (CO, CO2), Hydrogen halogenides, Carbonyl halogenides, fluorinated compounds.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers.

Protection during firefighting : Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with skin and eyes. Remove all sources of ignition. Do not smoke. Evacuate the danger area. Do not breathe smoke. Stop the leak.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

No additional information available

6.3. Methods and material for containment and cleaning up

Other information : Mechanically ventilate the spillage area.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid breathing mist, vapours. Do not get in eyes, on skin, or on clothing. Ventilation. Vapours are heavier than air and may spread along floors. Under certain temperature and pressure conditions may form a flammable mixture in the presence of air. Do not use joint paste that may contain peroxides.

Hygiene measures : Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store : in a cool, well-ventilated area, away from any source of heat, away from any source of ignition.

Incompatible materials : Strong oxidizing agents. Alkaline hydroxide. Alkaline earth metals. Finely divided metals (Al, Mg, Zn).

Packaging materials : Recommended materials: Stainless steel, Carbon steel. Do not use : Alloys containing more than 2% magnesium, Plastic materials.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Solstice® N40 (R-448A)	
Sweden - Occupational Exposure Limits	
Anmärkning (SE)	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)

1,1,1,2-Tetrafluoroethane (811-97-2)	
Germany - Occupational Exposure Limits (TRGS 900)	
TRGS 900 Local name	Norfluran
TRGS 900 Occupational exposure limit value (mg/m³)	4200 mg/m³

TRGS 900 Occupational exposure limit value (ppm)	1000 ppm
TRGS 900 Limitation of exposure peaks (mg/m³)	33600 mg/m³
TRGS 900 Limitation of exposure peaks (ppm)	8000 ppm
TRGS 900 Limitation of exposure peaks	8(II)
TRGS 900 Remark	DFG;Y
TRGS 900 Regulatory reference	TRGS900
Sweden - Occupational Exposure Limits	
Local name	HFC 134 a (1,1,1,2-Tetrafluoretan)
nivågränsvärde (NVG) (mg/m³)	2000 mg/m³
nivågränsvärde (NVG) (ppm)	500 ppm
kortidsvärde (KTV) (mg/m³)	3000 mg/m³
kortidsvärde (KTV) (ppm)	750 ppm
Anmärkning (SE)	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
Regulatory reference	Hygieniska gränsvärden (AFS 2015:7)
United Kingdom - Occupational Exposure Limits	
Local name	1,1,1,2-Tetrafluoroethane (HFC 134a)
WEL TWA (mg/m³)	4240 mg/m³
WEL TWA (ppm)	1000 ppm
Regulatory reference	EH40. HSE
Switzerland - Occupational Exposure Limits	
MAK (mg/m³)	4200 mg/m³
MAK (ppm)	1000 ppm

2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	
EU - Occupational Exposure Limits	
IOELV TWA (ppm)	500 ppm (recommended)
Germany - Occupational Exposure Limits (TRGS 900)	
TRGS 900 Occupational exposure limit value (mg/m³)	950 mg/m³
TRGS 900 Occupational exposure limit value (ppm)	200 ppm

Pentafluoroethane (354-33-6)	
EU - Occupational Exposure Limits	
IOELV TWA (mg/m³)	4900 mg/m³ (recommended)
IOELV TWA (ppm)	1000 ppm (recommended)
Czech Republic - Occupational Exposure Limits	
Local name	Pentafluoromethan
Expoziční limity (PEL) (mg/m³)	5000 mg/m³
Expoziční limity (PEL) (ppm)	1020 ppm
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (zapracovány změny č. 93/2012 Sb., 9/2013 Sb.)
Sweden - Occupational Exposure Limits	
Local name	1,1,1,2,2-Pentafluoretan
nivågränsvärde (NVG) (mg/m³)	2500 mg/m³
nivågränsvärde (NVG) (ppm)	500 ppm
kortidsvärde (KTV) (mg/m³)	3750 mg/m³
kortidsvärde (KTV) (ppm)	750 ppm
Anmärkning (SE)	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)

Regulatory reference	Hygieniska gränsvärden (AFS 2015:7)

Difluoromethane (75-10-5)	
EU - Occupational Exposure Limits	
IOELV TWA (mg/m³)	2200 (recommended)
IOELV TWA (ppm)	1000 ppm (recommended)
Czech Republic - Occupational Exposure Limits	
Expoziční limity (PEL) (mg/m³)	2000 mg/m³
Expoziční limity (PEL) (ppm)	940 ppm
Expoziční limity (NPK-P) (mg/m³)	5000 mg/m³
Expoziční limity (NPK-P) (ppm)	2350 ppm

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
EU - Occupational Exposure Limits	
IOELV TWA (ppm)	800 ppm (recommended)

1,1,1,2-Tetrafluoroethane (811-97-2)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	13936 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	2476 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.1 mg/l
PNEC aqua (marine water)	0.01 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.75 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	73 mg/l

2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	23000 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	> 0.1 mg/l
PNEC aqua (marine water)	> 0.01 mg/l
PNEC (Sediment)	
PNEC sediment (marine water)	> 0.178 mg/kg dwt
PNEC (Soil)	
PNEC soil	> 1.54 mg/kg dwt

Pentafluoroethane (354-33-6)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	16444 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	1753 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.1 mg/l
PNEC aqua (intermittent, freshwater)	1 mg/l

Pentafluoroethane (354-33-6)	
PNEC (Sediment)	
PNEC sediment (freshwater)	0.6 mg/kg dwt

Difluoromethane (75-10-5)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	7035 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	750 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.142 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.534 mg/kg dwt

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	3902 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	830 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.1 mg/l

8.2. Exposure controls

Hand protection:

Leather protective gloves. Nitrile-rubber protective gloves. VITON gloves

Eye protection:

Safety glasses with side shields

Skin and body protection:

Majority cotton protective clothing

Respiratory protection:

In the event of insufficient ventilation: Gas mask with filter type AX. In a confined area : Self-contained breathing apparatus

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Press. Gas (Liq.).
Colour	: Colourless.
Odour	: slightly ethereal.
Odour threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: -45.9 - -39.8 °C
Flash point	: Not applicable.
Auto-ignition temperature	: 628 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: 11.2 bar (21,1 °C)
Vapour pressure at 50 °C	: 25.88 bar (54,4 °C)
Relative vapour density at 20 °C	: 2.98
Relative density	: No data available

Density	: 1.11 g/cm³ (20 °C)
Solubility	: Insoluble in water.
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not explosive material according to EC criteria.
Oxidising properties	: Non oxidizing material according to EC criteria.
Explosive limits	: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity
10.1. Reactivity
Decomposes on exposure to temperature rise.
10.2. Chemical stability
Stable at ambient temperature and under normal conditions of use.
10.3. Possibility of hazardous reactions
No information available. No polymerization.
10.4. Conditions to avoid
Under certain temperature and pressure conditions may form a flammable mixture in the presence of air. Avoid high temperatures. Avoid naked flame.
10.5. Incompatible materials
Do not use joint paste that may contain peroxides. Alkalis and caustic products. alkali metals. Alkaline earth metals. Finely divided metals (Al, Mg, Zn). Strong oxidizing agents.
10.6. Hazardous decomposition products
On thermal decomposition (pyrolysis), releases : Hydrogen fluoride, Carbon oxides (CO, CO2), Fluorinated hydrocarbons, Carbonyl halogenides.

SECTION 11: Toxicological information
11.1. Information on toxicological effects
Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

1,1,1,2-Tetrafluoroethane (811-97-2)	
LC50 inhalation rat (ppm)	> 500000 ppm/4h

2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	
LC50 inhalation rat (ppm)	> 400000 ppm/4h

Pentafluoroethane (354-33-6)	
LC50 inhalation rat (ppm)	800000 ppm/4h

Difluoromethane (75-10-5)	
LC50 inhalation rat (ppm)	> 520000 ppm/4h

Skin corrosion/irritation	: Not classified pH: Not applicable
Additional information	: Contact with the liquid causes frostbite
Serious eye damage/irritation	: Not classified pH: Not applicable
Additional information	: Contact with the liquefied gas may cause severe ocular lesions
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

1,1,1,2-Tetrafluoroethane (811-97-2)	
NOAEL (chronic, oral, animal/male, 2 years)	300 mg/kg bodyweight rat

Reproductive toxicity	: Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Difluoromethane (75-10-5)	
NOAEC (inhalation, rat, gas, 90 days)	50000 ppmv/6h/day

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
NOAEC (inhalation, rat, gas, 90 days)	5000 ppmv/6h/day

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Not classified

Chronic aquatic toxicity : Not classified

1,1,1,2-Tetrafluoroethane (811-97-2)	
LC50 fish 1	450 mg/l 96 Hours (Oncorhynchus mykiss)
EC50 Daphnia 1	980 mg/l 48 Hours (Daphnia magna)
EC50 72h algae (1)	> 118 mg/l (Selenastrum capricornutum)

2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	
LC50 fish 1	> 197 mg/l Cyprinus carpio (Common carp)
EC50 Daphnia 1	> 83 mg/l (Daphnia magna)
EC50 72h algae (1)	> 100 mg/l (scenedesmus capricornutum)

Pentafluoroethane (354-33-6)	
LC50 fish 1	> 100 mg/l 96 Hours (Oncorhynchus mykiss)
EC50 Daphnia 1	> 100 mg/l 48 Hours (Daphnia magna)
EC50 72h algae (1)	> 114 mg/l 72 Hours (Pseudokirchneriella subcapitata)

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
EC50 Daphnia 1	> 160 mg/l 48 Hours (Daphnia magna)

12.2. Persistence and degradability

1,1,1,2-Tetrafluoroethane (811-97-2)	
Persistence and degradability	Photodegradation in the air : Half-life in air : 9,7 y. 3 % biodegradation after 28 days.

2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	
Persistence and degradability	Not readily biodegradable.

Pentafluoroethane (354-33-6)	
Persistence and degradability	5 % biodegradation after 28 days.

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
Persistence and degradability	Not readily biodegradable.

12.3. Bioaccumulative potential

1,1,1,2-Tetrafluoroethane (811-97-2)	
Log Pow	1.06

2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	
Log Pow	2.15

Pentafluoroethane (354-33-6)	
Log Pow	1.48

Difluoromethane (75-10-5)	
Log Pow	0.21

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
Log Pow	1.6

12.4. Mobility in soil

1,1,1,2-Tetrafluoroethane (811-97-2)	
Log Koc	1.5

Pentafluoroethane (354-33-6)	
Log Koc	1.3 - 1.7

12.5. Results of PBT and vPvB assessment

Component	
1,1,1,2-Tetrafluoroethane (811-97-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
2,3,3,3-Tetrafluoroprop-1-ene (754-12-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Pentafluoroethane (354-33-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

Other adverse effects : Ozone depletion factor ODP (R-11=1) = 0. Total global warming potential (GWP) : 1387.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Switzerland : OTD : RS 814.600 / OMoD : RS 814.610.

Product/Packaging disposal recommendations : Methods of disposal of packaging. Reuse or recycle following decontamination. Destroy at an authorised site.

Additional information : The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal.

SECTION 14: Transport information

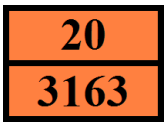
In accordance with ADR / IATA / IMDG

ADR	IMDG	IATA
14.1. UN number		
UN 3163	UN 3163	UN 3163
14.2. UN proper shipping name		
LIQUEFIED GAS, N.O.S. (1,1,1,2-Tetrafluoroethane ; 2,3,3,3-Tetrafluoroprop-1-ene ; Pentafluoroethane ; Difluoromethane ; Trans-1,3,3,3-Tetrafluoroprop-1-ene)	LIQUEFIED GAS, N.O.S. (1,1,1,2-Tetrafluoroethane ; 2,3,3,3-Tetrafluoroprop-1-ene ; Pentafluoroethane ; Difluoromethane ; Trans-1,3,3,3-Tetrafluoroprop-1-ene)	Liquefied gas, n.o.s. (1,1,1,2-Tetrafluoroethane ; 2,3,3,3-Tetrafluoroprop-1-ene ; Pentafluoroethane ; Difluoromethane ; Trans-1,3,3,3-Tetrafluoroprop-1-ene)

Transport document description		
UN 3163 LIQUEFIED GAS, N.O.S. (1,1,1,2-Tetrafluoroethane ; 2,3,3,3-Tetrafluoroprop-1-ene ; Pentafluoroethane ; Difluoromethane ; Trans-1,3,3,3-Tetrafluoroprop-1-ene), 2.2, (C/E)	UN 3163 LIQUEFIED GAS, N.O.S. (1,1,1,2-Tetrafluoroethane ; 2,3,3,3-Tetrafluoroprop-1-ene ; Pentafluoroethane ; Difluoromethane ; Trans-1,3,3,3-Tetrafluoroprop-1-ene), 2.2	UN 3163 Liquefied gas, n.o.s. (1,1,1,2-Tetrafluoroethane ; 2,3,3,3-Tetrafluoroprop-1-ene ; Pentafluoroethane ; Difluoromethane ; Trans-1,3,3,3-Tetrafluoroprop-1-ene), 2.2
14.3. Transport hazard class(es)		
2.2	2.2	2.2
		
14.4. Packing group		
Not applicable	Not applicable	Not applicable
14.5. Environmental hazards		
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No
No supplementary information available		

14.6. Special precautions for user

Overland transport

Classification code (ADR)	: 2A
Special provisions (ADR)	: 274, 662
Limited quantities (ADR)	: 120ml
Tank code (ADR)	: PxBN(M)
Transport category (ADR)	: 3
Hazard identification number (Kemler No.)	: 20
Orange plates	: 
Tunnel restriction code (ADR)	: C/E
EAC code	: 2TE

Transport by sea

Special provisions (IMDG)	: 274
Limited quantities (IMDG)	: 120 ml
EmS-No. (Fire)	: F-C
EmS-No. (Spillage)	: S-V

Air transport

PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: 200
PCA max net quantity (IATA)	: 75kg
CAO packing instructions (IATA)	: 200
CAO max net quantity (IATA)	: 150kg

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances
Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.
Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Other information, restriction and prohibition regulations : * Regulation (EC) No 517/2014 : Greenhouse fluorinated gas falling within Kyoto Protocol.

15.1.2. National regulations

Ensure all national/local regulations are observed.

Germany

Reference to AwSV : Water hazard class (WGK) 1, Slightly hazardous to water (Classification according to AwSV)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

Switzerland

Swiss National Regulations : ORRChim RS 814.81.

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes:			
Section	**Changed item**	**Change**	**Comments**
5.2	Hazardous decomposition products in case of fire	Added	
7.1	Precautions for safe handling	Added	
10.5	Incompatible materials	Added	

Other information : For more information regarding the use of this product, please refer to our technical information or contact the sales department in your region.

Full text of H- and EUH-statements:	
Flam. Gas 1	Flammable gases, Category 1
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.