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

1.1. Product identifier

Product form	:	Mixture
Name	:	R-507A
Product code	:	100050700

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

Relevant identified uses

Use of the substance/mixture	:	Refrigerant

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 Kft Budepesta sucurcala Bucuresti Romania
Bulevardul Hristo Botev, Nr. 28,
Biroul NR 4, Modulul I
Bucuresti Sectorul 3
Romania
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 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
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
Prochimac SA
ZI Petits Champs 15
CH-1400 Yverdon-les-Bains
Switzerland
T 00 41 32 727 36 00, F 00 41 32 727 36 19
ContactFDS@climalife.dehon.com

Other

Other
Climalife Hongrie Kft.
Villányi út 47
1118 Budapest
Hungary
T (36) 23 431 660
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 nordic service
Östra Hamngatan 50B 3tr
41109 GÖTEBORG
Sweden
T 00 46 735 01 90 50
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
IDS Refrigeration Limited
22 Apex Court, Woodlands, Bradley Stoke
BS32 4JT Bristol
United Kingdom
T 00 44 1179 802520, F 00 44 1179 802521
ContactFDS@climalife.dehon.com

Other
Galco s.a/n.v.
Avenue Carton de Wiart, 79
1090 BRUSSELS
Belgium
T 00 32 2 421 01 84 , F 00 32 2 421 01 84 / 00 32 2 425 38 12
ContactFDS@climalife.dehon.com

Other

Climalife Asia Corporation
Room 302-A82, No.3, Building 1509, Xin Zhen Road,
201101 Shanghai , Minhang District
China
T +86 21 6442 3972 , F +86 21 6442 3952
ContactFDS@climalife.dehon.com

Other
Teknalys Middle East FZCO
B34BS33O203, Jebel Ali Freezone
Dubai
United Arab Emirates
ContactFDS@climalife.dehon.com

Galco Singapore Branch
135 Cecil Street #10-01
Singapore
ContactFDS@climalife.dehon.com

1.4. Emergency telephone number

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

Country/Area	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH	0344 892 0111	Only for healthcare professionals

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, H- and EUH-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) : P403 - Store in a well-ventilated place.
Extra phrases : Greenhouse fluorinated gas falling within Kyoto Protocol (GWP=3985).

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	1,1,1-Trifluoroethane (420-46-2), Pentafluoroethane (354-33-6)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	1,1,1-Trifluoroethane (420-46-2), Pentafluoroethane (354-33-6)

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,1,1-Trifluoroethane	CAS-No.: 420-46-2 EC-No.: 206-996-5 REACH-no: 01-2119492869-13	50	Flam. Gas 1A, H220 Press. Gas (Liq.), H280
Pentafluoroethane	CAS-No.: 354-33-6 EC-No.: 206-557-8 REACH-no: 01-2119485636-25	50	Press. Gas (Liq.), H280

Full text of H- and EUH-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.

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.

6.2. 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.
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

National occupational exposure and biological limit values

Pentafluoroethane (354-33-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	4900 mg/m³ (recommended)
	1000 ppm (recommended)

DNEL and PNEC

1,1,1-Trifluoroethane (420-46-2)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	38800 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	10700 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	350 µg/l

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
PNEC (Sediment)	
PNEC sediment (freshwater)	0.6 mg/kg dwt

8.2. Exposure controls

Personal protection equipment

Eye and face protection

Eye protection:
Safety glasses with side shields

Skin protection

Skin and body protection:
Majority cotton protective clothing

Hand protection:
Leather protective gloves. Nitrile-rubber protective gloves. VITON gloves

Respiratory protection

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
Colour	:	Colourless.
Appearance	:	Press. Gas (Liq.).
Molecular mass	:	102.03 g/mol
Odour	:	slightly ethereal.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not applicable
Boiling point	:	-47.1 °C
Flammability	:	Non flammable.
Explosive properties	:	Not explosive material according to EC criteria.

Oxidising properties	:	Non oxidizing material according to EC criteria.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	None
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not applicable
Viscosity, kinematic	:	Not applicable
Solubility	:	Insoluble in water.
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	12.9 bar (25°C)
Vapour pressure at 50°C	:	23.7 bar (50°C)
Critical pressure	:	37.2 bar
Density	:	1.042 g/cm³ (25°C)
Relative density	:	Not applicable
Relative vapour density at 20°C	:	5.52
Particle characteristics	:	Not applicable

9.2. Other information

Information with regard to physical hazard classes

Critical temperature : 71 °C

Other safety characteristics

VOC content : 100 %

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

Avoid high temperatures. Avoid naked flame. Heating will cause a rise in pressure with a risk of bursting.

10.5. Incompatible materials

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

1,1,1-Trifluoroethane (420-46-2)	
LC50 Inhalation - Rat [ppm]	591000 ppm/4h

Pentafluoroethane (354-33-6)	
LC50 Inhalation - Rat [ppm]	800000 ppm/4h

Skin corrosion/irritation : Not classified
pH: Not applicable
Additional information : Contact with the liquid causes frostbite

1,1,1-Trifluoroethane (420-46-2)	
pH	Not applicable

Pentafluoroethane (354-33-6)	
pH	Not applicable

Serious eye damage/irritation : Not classified
pH: Not applicable
Additional information : Contact with the liquefied gas may cause severe ocular lesions

1,1,1-Trifluoroethane (420-46-2)	
pH	Not applicable

Pentafluoroethane (354-33-6)	
pH	Not applicable

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified

Pentafluoroethane (354-33-6)	
NOAEL (animal/male, F0/P)	245 mg/kg
NOAEL (animal/female, F0/P)	245 mg/kg

STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

Pentafluoroethane (354-33-6)	
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	50000 ppm

Aspiration hazard : Not applicable

11.2. Information on other hazards

Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short–term (acute) : Not classified
Hazardous to the aquatic environment, long–term (chronic) : Not classified

1,1,1-Trifluoroethane (420-46-2)	
LC50 - Fish [1]	> 40 mg/l Oncorhynchus mykiss (Rainbow trout)
LC50 - Fish [2]	109 mg/l (freshwater)

1,1,1-Trifluoroethane (420-46-2)	
EC50 - Crustacea [1]	115 – 300 mg/l 48 Hours (Daphnia magna)
EC50 72h - Algae [1]	≈ 71 mg/l Test organisms (species):
EC50 96h - Algae [1]	71 mg/l
NOEC chronic algae	> 44 mg/l selenastrum capricornutum

Pentafluoroethane (354-33-6)	
LC50 - Fish [1]	> 81.8 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
LC50 - Fish [2]	450 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	> 97.9 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 114 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	> 118 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
NOEC chronic fish	32 mg/l Test organisms (species): Duration: '30 d'

12.2. Persistence and degradability

R-507A	
Persistence and degradability	Not established.

1,1,1-Trifluoroethane (420-46-2)	
Persistence and degradability	3 % biodegradation after 28 days.

Pentafluoroethane (354-33-6)	
Persistence and degradability	5 % biodegradation after 28 days, Not readily biodegradable.

12.3. Bioaccumulative potential

1,1,1-Trifluoroethane (420-46-2)	
Partition coefficient n-octanol/water (Log Pow)	1.73

Pentafluoroethane (354-33-6)	
Partition coefficient n-octanol/water (Log Kow)	1.48 (25°C)

12.4. Mobility in soil

Pentafluoroethane (354-33-6)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.3 – 1.7

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	1,1,1-Trifluoroethane (420-46-2), Pentafluoroethane (354-33-6)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	1,1,1-Trifluoroethane (420-46-2), Pentafluoroethane (354-33-6)

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %.

12.7. Other adverse effects

Other adverse effects : ODP (R-11=1)=0.

R-507A	
Other information	GWP (CO2=1/100 years) = 3985

1,1,1-Trifluoroethane (420-46-2)	
Other information	GWP (CO2=1/100 years) = 4470

Pentafluoroethane (354-33-6)	
Other information	GWP (CO2=1/100 years) = 3500

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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 / IMDG / IATA

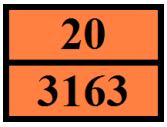
ADR	IMDG	IATA
14.1. UN number or ID number		
UN 3163	UN 3163	UN 3163
14.2. UN proper shipping name		
LIQUEFIED GAS, N.O.S. (1,1,1-Trifluoroethane ; Pentafluoroethane)	LIQUEFIED GAS, N.O.S. (1,1,1-Trifluoroethane ; Pentafluoroethane)	Liquefied gas, n.o.s. (1,1,1-Trifluoroethane ; Pentafluoroethane)
Transport document description		
UN 3163 LIQUEFIED GAS, N.O.S. (1,1,1-Trifluoroethane ; Pentafluoroethane), 2.2, (C/E)	UN 3163 LIQUEFIED GAS, N.O.S. (1,1,1-Trifluoroethane ; Pentafluoroethane), 2.2	UN 3163 Liquefied gas, n.o.s. (1,1,1-Trifluoroethane ; Pentafluoroethane), 2.2
14.3. Transport hazard class(es)		
2.2	2.2	2.2
		
14.4. Packing group		
Not applicable	Not applicable	Not applicable

ADR	IMDG	IATA
14.5. Environmental hazards		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No EmS-No. (Fire): F-C EmS-No. (Spillage): S-V	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, 392
Limited quantities (IMDG) : 120 ml

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. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

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

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

VOC Directive (2004/42)

VOC content : 100 %

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

National regulations

Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes:
All chapters have been modified since the previous version.

Indication of changes

Section	Changed item	Comments
	Adverse health effects caused by endocrine disrupting properties	**Added**
	Classification code (RID)	**Added**
	Special provisions (IMDG)	**Modified**
	Special provisions (RID)	**Modified**
	Flash point (IMDG)	**Removed**
2.2	Precautionary statements (CLP)	**Modified**
3	Composition/information on ingredients	**Modified**
9	Molecular mass	**Added**
9	VOC content	**Added**
12.2	Persistence and degradability	**Added**
12.6	Adverse effects on the environment caused by endocrine disrupting properties	**Added**
12.7	Other information	**Added**
14.6	Special provisions (ADN)	**Modified**

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 1A	Flammable gases, Category 1A
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.

Safety Data Sheet (SDS), EU

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.