

## SAFETY DATA SHEET

**SOLKATHERM® SES 36**

Revision Date 26.10.2021

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

- Trade name SOLKATHERM® SES 36
- Chemical name 1,1,1,3,3-Pentafluorobutane (= HFC-365mfc) / 1-Propene, 1,1,2,3,3,3-hexafluoro-, oxidized, polymd. (= Galden® HT55)

**1.2 Relevant identified uses of the substance or mixture and uses advised against****Uses of the Substance/Mixture**

- Heat transfer medium
- Refrigerant
- Solvent

**1.3 Details of the supplier of the safety data sheet****Company**

SOLVAY FRANCE S.A.  
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**E-mail address**

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[hse@service-chimie.fr](mailto:hse@service-chimie.fr)

[www.service-chimie.fr](http://www.service-chimie.fr)

**1.4 Emergency telephone number**

+44(0)1235 239 670 [CareChem 24]

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**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (Regulation (EC) No 1272/2008 )**

Long-term (chronic) aquatic hazard, Category 4

H413: May cause long lasting harmful effects to aquatic life.

**2.2 Label elements****Regulation (EC) No 1272/2008****Hazard statements**

- H413

May cause long lasting harmful effects to aquatic life.

**Precautionary statements****Prevention**

- P273

Avoid release to the environment.

**Disposal**

- P501

Dispose of contents/ container to an approved waste disposal plant.

**2.3 Other hazards which do not result in classification**

None known.

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**SECTION 3: Composition/information on ingredients**
**3.1 Substance**

- Not applicable, this product is a mixture.

**3.2 Mixture**

- Chemical name 1,1,1,3,3-Pentafluorobutane (= HFC-365mfc) / 1-Propene, 1,1,2,3,3,3-hexafluoro-, oxidized, polymd. (= Galden ® HT55)

**Information on Components and Impurities**

Chemical name	Identification number	Classification Regulation (EC) No 1272/2008	SCL, M-factor, ATE	Concentration [%]
1,1,1,3,3-pentafluorobutane	Index-No. : 602-102-00-6 CAS-No. : 406-58-6 ELINCS No. : 430-250-1	Flammable liquids, Category 2 ; H225	ATE (Oral): > 2.000 mg/kg ATE (Inhalation): > 100.000 ppm (vapour)	60 - 70
Registration number: 01-0000017653-68-xxxx				
Hexafluoropropene, oxidized, oligomers, reduced, fluorinated	CAS-No. : 161075-00-9	Long-term (chronic) aquatic hazard, Category 4 ; H413	ATE (Oral): > 5.000 mg/kg ATE (Dermal): > 2.000 mg/kg ATE (Inhalation): > 1.627 mg/l (vapour)	30 - 40
Registration number: 01-2119970717-25-xxxx self classification				

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures**
**4.1 Description of first aid measures**
**In case of inhalation**

- Remove to fresh air.
- Oxygen or artificial respiration if needed.
- If symptoms persist, call a physician.

**In case of skin contact**

- Wash off with soap and water.
- If symptoms persist, call a physician.

**In case of eye contact**

- Rinse thoroughly with plenty of water, also under the eyelids.
- If eye irritation persists, consult a specialist.

**In case of ingestion**

- Clean mouth with water and drink afterwards plenty of water.
- If symptoms persist, call a physician.

**4.2 Most important symptoms and effects, both acute and delayed**
**In case of inhalation**

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**Symptoms**

- narcosis
- At high concentrations:
- Asphyxia

**In case of skin contact****Effects**

- Prolonged skin contact may defat the skin and produce dermatitis.

**In case of eye contact****Effects**

- slight irritation

**In case of ingestion****Effects**

- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

**4.3 Indication of any immediate medical attention and special treatment needed****Notes to physician**

- When symptoms persist or in all cases of doubt seek medical advice.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

- powder
- Foam
- Aqueous film forming foam (AFFF).
- Carbon dioxide (CO<sub>2</sub>)

**Unsuitable extinguishing media**

- Water may be ineffective.

**5.2 Special hazards arising from the substance or mixture****Specific hazards during firefighting**

- The product is not flammable.
- Vapours are heavier than air and may spread along floors.
- Risk of ignition.
- Vapours may form explosive mixtures with air.
- Hazardous decomposition products formed under fire conditions.

**Hazardous combustion products:**

- Fluorophosgene
- The release of other hazardous decomposition products is possible.

**5.3 Advice for firefighters****Special protective equipment for firefighters**

- Wear self-contained breathing apparatus and protective suit.
- Full protective flameproof clothing
- Wear chemical resistant oversuit
- Special protective actions for fire-fighters
- In case of fire, use water spray.

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- Keep product and empty container away from heat and sources of ignition.

**Further information**

- Evacuate personnel to safe areas.
- Keep containers and surroundings cool with water spray.
- Approach from upwind.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures****Advice for non-emergency personnel**

- Prevent further leakage or spillage if safe to do so.
- Keep away from incompatible products

**Advice for emergency responders**

- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Remove all sources of ignition.
- Wear self-contained breathing apparatus and protective suit.
- Cover the spreading liquid with foam in order to slow down the evaporation.
- Ventilate the area.

**6.2 Environmental precautions**

- Should not be released into the environment.
- If the product contaminates rivers and lakes or drains inform respective authorities.

**6.3 Methods and materials for containment and cleaning up**

- Dam up.
- Soak up with inert absorbent material.
- Prevent product from entering sewage system.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 13. DISPOSAL CONSIDERATIONS

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

- Used in closed system
- Use only in well-ventilated areas.
- Keep away from heat and sources of ignition.
- Heating can release vapours which can be ignited.
- To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.
- When transferring from one container to another apply earthing measures and use conductive hose material.
- Preferably transfer by pump or gravity.
- Do not use sparking tools.
- Keep away from incompatible products

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**Hygiene measures**

- Use only in an area equipped with a safety shower.
- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Gloves, overalls and boots have to be double layered (protection against cold temperature).
- Handle in accordance with good industrial hygiene and safety practice.

**7.2 Conditions for safe storage, including any incompatibilities****Technical measures/Storage conditions**

- Keep tightly closed in a dry, cool and well-ventilated place.
- Keep in a banded area.
- Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- Ensure all equipment is electrically grounded before beginning transfer operations.
- Take measures to prevent the build up of electrostatic charge.
  
- Keep away from:
- Incompatible products

**Packaging material****Remarks**

- Store in original container.

**7.3 Specific end use(s)**

- Contact your supplier for additional information

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Components with workplace occupational exposure limits**

Components	Value type	Value	Basis
Hexafluoropropene, oxidized, oligomers, reduced, fluorinated	TWA	555 ppm	Solvay Acceptable Exposure Limit

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**Derived No Effect Level (DNEL) / Derived minimal effect level (DMEL)**

Product name	Population	Route of exposure	Potential health effects	Exposure time	Value	Remarks
1,1,1,3,3-pentafluorobutane	Workers	Dermal	Long-term systemic effects		9940 mg/kg	
	Workers	Inhalation	Long-term systemic effects		4053 mg/m3	
	Consumers	Dermal	Long-term systemic effects		2982 mg/kg	
	Consumers	Inhalation	Long-term systemic effects		605 mg/m3	
	Consumers	Oral	Long-term systemic effects		3 mg/kg	
Hexafluoropropene, oxidized, oligomers, reduced, fluorinated	Workers	Inhalation	Long-term systemic effects		3088 mg/m3	
	Consumers	Inhalation	Long-term systemic effects		2304 mg/m3	

**Predicted No Effect Concentration ( PNEC )**

Product name	Compartment	Value	Remarks
1,1,1,3,3-pentafluorobutane	Fresh water	1,2 mg/l	
	Marine water	0,12 mg/l	
	Marine sediment	0,737 mg/kg	
	Fresh water sediment	7,37 mg/kg	
	Soil	0,823 mg/kg	
	Sewage treatment plant	5,95 mg/l	
	Intermittent use/release	1,14 mg/l	

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Hexafluoropropene, oxidized, oligomers, reduced, fluorinated	Fresh water	0,000208 mg/l	
	Intermittent use/release		No PNEC derivation as no adverse effect was observed (qualitative approach).
	Marine water	0,000021 mg/l	
	Fresh water sediment	0,115 mg/kg dry weight (d.w.)	Derived with the Equilibrium Partitioning Method.
	Marine sediment	0,0115 mg/kg dry weight (d.w.)	Derived with the Equilibrium Partitioning Method.
	Soil	0,183 mg/kg dry weight (d.w.)	Derived with the Equilibrium Partitioning Method.
	Sewage treatment plant		No PNEC derivation as no adverse effect was observed (qualitative approach).
	Oral (secondary poisoning)	33 mg/kg	Worst case PNEC (derived although no effect was observed).
	Air		No PNEC derivation as no adverse effect was observed (qualitative approach).

**8.2 Exposure controls**
**Control measures**
**Engineering measures**

- Provide appropriate exhaust ventilation at machinery.
- Apply technical measures to comply with the occupational exposure limits.
- Refer to protective measures listed in sections 7 and 8.

**Individual protection measures**
**Respiratory protection**

- Self-contained breathing apparatus in confined spaces/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.
- In the case of vapour formation use a respirator with an approved filter.
- Recommended Filter type: AX
- Protective equipment only chosen according to specific regulatory requirements after a risk assessment.

**Hand protection**

- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
- Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

**Suitable material**

- PVA
- Copolymer VF2-HFP (fluoroelastomer)

**Eye protection**

- Chemical resistant goggles must be worn.

**Skin and body protection**

- Wear suitable protective clothing, gloves and eye/face protection.

**Hygiene measures**

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- Use only in an area equipped with a safety shower.
- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Gloves, overalls and boots have to be double layered (protection against cold temperature).
- Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

- Dispose of rinse water in accordance with local and national regulations.

**SECTION 9: Physical and chemical properties**
**9.1 Information on basic physical and chemical properties**

<b><u>Physical state</u></b>	liquid
<b><u>Form</u></b>	Volatile.
<b><u>Colour</u></b>	colourless
<b><u>Odour</u></b>	ether-like
<b><u>Odour Threshold</u></b>	No data available
<b><u>Melting point/freezing point</u></b>	No data available
<b><u>Initial boiling point and boiling range</u></b>	<u>Boiling point/boiling range</u> : 36,7 °C
<b><u>Flammability (solid, gas)</u></b>	Not applicable
<b><u>Flammability (liquids)</u></b>	The product is not flammable. Can become highly flammable in use.
<b><u>Flammability/Explosive limit</u></b>	<u>Lower flammability/explosion limit</u> : Type: Lower explosion limit 3,90 %(V)  <u>Upper flammability/explosion limit</u> : Type: Upper explosion limit 11,70 %(V)
<b><u>Flash point</u></b>	does not flash
<b><u>Auto-ignition temperature</u></b>	No data available
<b><u>Decomposition temperature</u></b>	>= 200 °C
<b><u>pH</u></b>	6,0
<b><u>Viscosity</u></b>	<u>Viscosity, dynamic</u> : 0,4 mPa.s ( 25 °C)
<b><u>Solubility</u></b>	No data available
<b><u>Partition coefficient: n-octanol/water</u></b>	log Pow: 1,6  1,1,1,3,3-pentafluorobutane
<b><u>Vapour pressure</u></b>	500 hPa ( 20 °C)
<b><u>Density</u></b>	<u>Bulk density</u> : Not applicable
<b><u>Relative density</u></b>	1,37

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<b>Relative vapor density</b>	> 1 ( 20 °C)
<b>Particle characteristics</b>	No data available
<b>Evaporation rate (Butylacetate = 1)</b>	No data available

**9.2 Other information**

<b>Explosiveness</b>	In use, may form flammable/explosive vapour-air mixture.
<b>Oxidizing properties</b>	Not considered as oxidizing
<b>Self-ignition</b>	580 °C 1,1,1,3,3-pentafluorobutane
<b>Henry's Constant</b>	ca. 3800 Pa.m <sup>3</sup> /mol (20 °C) Method: Calculation method considerable volatility, Air

**SECTION 10: Stability and reactivity****10.1 Reactivity**

- Risk of violent reaction.
- Risk of explosion.

**10.2 Chemical stability**

- Stable under recommended storage conditions.
- In use, may form flammable/explosive vapour-air mixture.
- Strong oxidizers, alkali metals and alkaline earth metals may cause fires or explosions.

**10.3 Possibility of hazardous reactions**

- Strong oxidizers, alkali metals and alkaline earth metals may cause fires or explosions.

**10.4 Conditions to avoid**

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Avoid excessive heat for prolonged periods of time.

**10.5 Incompatible materials**

- Light and/or alkaline metals
- Powdered metals
- Alkaline earth metals

**10.6 Hazardous decomposition products**

- Hazardous decomposition products**
- Gaseous hydrogen fluoride (HF).
  - Carbon monoxide

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity****Acute oral toxicity**

1,1,1,3,3-pentafluorobutane

LD50 : &gt; 2.000 mg/kg - Rat , male and female

Method: OECD Test Guideline 401

Not classified as hazardous for acute oral toxicity according to GHS.

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Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Acute inhalation toxicity**

1,1,1,3,3-pentafluorobutane

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Acute dermal toxicity**

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Acute toxicity (other routes of  
administration)****Skin corrosion/irritation**

1,1,1,3,3-pentafluorobutane

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Serious eye damage/eye irritation**

1,1,1,3,3-pentafluorobutane

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Respiratory or skin sensitisation**

1,1,1,3,3-pentafluorobutane

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Mutagenicity****Genotoxicity in vitro**

1,1,1,3,3-pentafluorobutane  
Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

**Genotoxicity in vivo**

1,1,1,3,3-pentafluorobutane

LD50 : > 5.000 mg/kg - Rat , male and female  
Method: OECD Test Guideline 401  
Unpublished internal reports

LC50 - 4 h ( vapour ) : > 100.000 ppm - Rat , male and female  
Not classified as hazardous for acute inhalation toxicity according to GHS.  
LC50 - 4 h ( vapour ) : > 1.627 mg/l - Rat , male and female  
Method: OECD Test Guideline 403  
Unpublished internal reports

LD50 : > 2.000 mg/kg - Rat , male and female  
Method: OECD Test Guideline 402  
Unpublished internal reports  
No data available

Rabbit  
No skin irritation  
Method: OECD Test Guideline 404  
Rabbit  
No skin irritation  
Method: OECD Test Guideline 404  
Unpublished internal reports

Rabbit  
No eye irritation  
Method: OECD Test Guideline 405  
Rabbit  
No eye irritation  
Method: OECD Test Guideline 405  
Unpublished internal reports

Maximisation Test - Guinea pig  
Does not cause skin sensitisation.  
Method: OECD Test Guideline 406  
Buehler Test - Guinea pig  
Does not cause skin sensitisation.  
Method: OECD Test Guideline 406  
Unpublished internal reports

In vitro tests did not show mutagenic effects  
Ames test  
with and without metabolic activation

negative  
Method: OECD Test Guideline 471  
Information given is based on data obtained from similar substances.  
Unpublished internal reports  
Chromosome aberration test in vitro  
with and without metabolic activation

negative  
Method: OECD Test Guideline 473  
Information given is based on data obtained from similar substances.  
Unpublished internal reports

In vivo tests did not show mutagenic effects

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Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinatedIn vivo micronucleus test - Rat  
male  
Inhalation  
Method: OECD Test Guideline 474negative  
Information given is based on data obtained from similar substances.  
Unpublished internal reports  
No data available**Carcinogenicity****Toxicity for reproduction and development****Toxicity to reproduction/Fertility**

1,1,1,3,3-pentafluorobutane

One-Generation Reproduction Toxicity Study - Rat, male and female, Inhalation  
Fertility NOAEL Parent: 30.000 ppm  
OECD Test Guideline 415**Developmental Toxicity/Teratogenicity**

1,1,1,3,3-pentafluorobutane

Rat, female, Inhalation  
Teratogenicity NOAEC:30.000ppm  
Method: OECD Test Guideline 414  
no embryotoxic or teratogenic effects have been observed  
Rabbit, female, Inhalation  
Teratogenicity NOAEC:30.000ppm  
Method: OECD Test Guideline 414  
no embryotoxic or teratogenic effects have been observedHexafluoropropene, oxidized,  
oligomers, reduced, fluorinatedRat, Inhalation  
Method: OECD Test Guideline 414  
no embryotoxic or teratogenic effects have been observed, Information given is  
based on data obtained from similar substances., Unpublished internal reports**STOT****STOT - single exposure**

1,1,1,3,3-pentafluorobutane

The substance or mixture is not classified as specific target organ toxicant, single  
exposure according to GHS criteria.Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinatedThe substance or mixture is not classified as specific target organ toxicant, single  
exposure according to GHS criteria.**STOT - repeated exposure**

1,1,1,3,3-pentafluorobutane

The substance or mixture is not classified as specific target organ toxicant,  
repeated exposure according to GHS criteria.Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated  
1,1,1,3,3-pentafluorobutaneThe substance or mixture is not classified as specific target organ toxicant,  
repeated exposure according to GHS criteria.  
Inhalation Single exposure - Dog  
LOAEL: 75100 ppm  
cardiac sensitization following adrenergic stimulation  
Inhalation 1-year - Rat , male and female  
NOAEC: 6980 ppm  
Target Organs: Liver, KidneyHexafluoropropene, oxidized,  
oligomers, reduced, fluorinatedOral 28-day - Rat , male and female  
NOEL: 1000 mg/kg  
Method: OECD Test Guideline 407  
Unpublished internal reports

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Inhalation (vapour) 28-day - Rat , male and female  
NOAEC: 9842 ppm  
Method: OECD Test Guideline 412  
No significant adverse effects were reported  
Information given is based on data obtained from similar substances.  
Unpublished internal reports

Inhalation (vapour) 90-day - Rat , male  
NOAEC: 10075 ppm  
Method: OECD Test Guideline 413  
No significant adverse effects were reported  
Information given is based on data obtained from similar substances.  
Unpublished internal reports

**CMR effects****Mutagenicity**

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

The product is considered to be non-mutagenic based on an overall assessment of the data from animal and/or in vitro testing.

**Teratogenicity**

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

Animal testing did not show any effects on foetal development.

**Aspiration toxicity**

No data available

**11.2 Information on other hazards****Endocrine disrupting properties**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Experience with human exposure**

No data available

**SECTION 12: Ecological information****12.1 Toxicity****Aquatic Compartment****Acute toxicity to fish**

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

- 96 h : - Danio rerio (zebra fish)  
semi-static test  
Analytical monitoring: yes

Method: OECD Test Guideline 203  
No significant deleterious effects observed up to the highest concentration tested  
Unpublished internal reports

**Acute toxicity to daphnia and other aquatic invertebrates**

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

- 48 h : - Daphnia magna (Water flea)  
semi-static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 202

No significant deleterious effects observed up to the highest concentration tested  
Unpublished internal reports

**Toxicity to aquatic plants**

Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

- 72 h : - Pseudokirchneriella subcapitata (green algae)  
static test  
Analytical monitoring: yes

End point: Growth rate  
Method: OECD Test Guideline 201  
No significant deleterious effects observed up to the highest concentration tested  
Unpublished internal reports

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**Toxicity to microorganisms**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

NOEC - 3 h : 1.000 mg/l - activated sludge

Analytical monitoring: no

Method: OECD Test Guideline 209

Unpublished internal reports

**Chronic toxicity to fish**

No data available

**Chronic toxicity to daphnia and  
other aquatic invertebrates**

No data available

**12.2 Persistence and degradability****Abiotic degradation****Stability in water**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

Method: Structure-activity relationship (SAR)

Stable

**Physical- and photo-chemical  
elimination**

No data available

**Biodegradation****Biodegradability**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinatedThe substance does not fulfill the criteria for ready biodegradability and ultimate  
aerobic biodegradability

Structure-activity relationship (SAR)

**Degradability assessment**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

The product is not considered to be rapidly degradable in the environment

**12.3 Bioaccumulative potential****Partition coefficient: n-octanol/water**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

Not relevant

Direct and indirect exposure of the aquatic compartment is unlikely.

**Bioconcentration factor (BCF)**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

Bioaccumulation is unlikely.

Direct and indirect exposure of the aquatic compartment is unlikely.

**12.4 Mobility in soil****Adsorption potential (Koc)**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

Adsorption/Soil

Koc: 1000 - 10000

Method: OECD Test Guideline 106

Unpublished internal reports

**Known distribution to environmental compartments**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinated

Ultimate destination of the product : Air

Fate models

Predicted distribution to environmental compartments

**12.5 Results of PBT and vPvB assessment**Hexafluoropropene, oxidized,  
oligomers, reduced, fluorinatedThis substance is not considered to be persistent, bioaccumulating and toxic  
(PBT).This substance is not considered to be very persistent and very bioaccumulating  
(vPvB).

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Impression du 19/04/2022

SAS au capital de 180 000 € - RCS Meaux 331 915 645

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**12.6 Endocrine disrupting properties**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects****Ozone-Depletion Potential**

Ozone-Depletion Potential: 0  
Additional Information: no effect on stratospheric ozone  
Ozone depletion potential; ODP; (R-11 = 1)

**Global warming potential**

Regulatory basis: Regulation (EU) No 517/2014 on fluorinated greenhouse gases  
100-year global warming potential: 794  
Additional Information: ANNEX I FLUORINATED GREENHOUSE GASES REFERRED TO IN POINT 1 OF ARTICLE 2 ; Section 1: Hydrofluorocarbons (HFCs)

**Ecotoxicity assessment****Short-term (acute) aquatic hazard**

Hexafluoropropene, oxidized, oligomers, reduced, fluorinated

Not classified due to data which are conclusive although insufficient for classification.  
No acute environmental hazard identified

**Long-term (chronic) aquatic hazard**

Hexafluoropropene, oxidized, oligomers, reduced, fluorinated

May cause long lasting harmful effects to aquatic life.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Product Disposal**

- The incinerator must be equipped with a system for the neutralisation or recovery of HF.
- The Company encourages the recycle, recovery and reuse of materials, where permitted. If disposal is necessary, The Company recommends that organic materials, especially when classified as hazardous waste, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

**Advice on cleaning and disposal of packaging**

- Where possible recycling is preferred to disposal or incineration.

**SECTION 14: Transport information****ADN/ADNR**

not regulated

**ADR**

not regulated

**RID**

not regulated

**IMDG**

not regulated

**IATA**

not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

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**SECTION 15: Regulatory information**
**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
**Notification status**

Inventory Information	Status
United States TSCA Inventory	<ul style="list-style-type: none"> <li>- All substances listed as active on the TSCA inventory</li> <li>- CAS: 69991-67-9</li> </ul>
Canadian Domestic Substances List (DSL)	<ul style="list-style-type: none"> <li>- Listed on Inventory</li> <li>- CAS: 69991-67-9</li> </ul>
Japan. CSCL - Inventory of Existing and New Chemical Substances	<ul style="list-style-type: none"> <li>- Listed on Inventory</li> </ul>
Australian Inventory of Industrial Chemicals (AIIC)	<ul style="list-style-type: none"> <li>- Listed on Inventory: Listed introduction</li> <li>- CAS: 69991-67-9</li> </ul>
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	<ul style="list-style-type: none"> <li>- Listed on Inventory</li> <li>- CAS: 69991-67-9</li> </ul>
Korea. Korean Existing Chemicals Inventory (KECI)	<ul style="list-style-type: none"> <li>- Listed on Inventory</li> <li>- CAS: 69991-67-9</li> </ul>
Taiwan Chemical Substance Inventory (TCSI)	<ul style="list-style-type: none"> <li>- Listed on Inventory</li> </ul>
New Zealand. Inventory of Chemical Substances	<ul style="list-style-type: none"> <li>- All components are listed on the NZIoC inventory. Additional HSNO obligations may apply. Please refer to Section 15 of SDS for New Zealand.</li> <li>- CAS: 69991-67-9</li> </ul>
China. Inventory of Existing Chemical Substances in China (IECSC)	<ul style="list-style-type: none"> <li>- Listed on Inventory</li> <li>- CAS: 69991-67-9</li> </ul>
EU. European Registration, Evaluation, Authorization and Restriction of Chemical (REACH)	<ul style="list-style-type: none"> <li>- When purchased from a Solvay legal entity based in the EEA ("European Economic Area"), this product is compliant with the registration provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, and/or registered. When purchased from a legal entity outside of the EEA, please contact your local representative for additional information.</li> </ul>

**15.2 Chemical safety assessment**

- None

**SECTION 16: Other information**
**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No. 1272/2008**
**Classification**

Long-term (chronic) aquatic hazard - Category 4

**Justification**

Calculation method

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

- H225: Highly flammable liquid and vapour.
- H413: May cause long lasting harmful effects to aquatic life.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

- ADR: European Agreement on International Carriage of Dangerous Goods by Road.
- ADN: European Agreement on the International Carriage of Dangerous Goods by Inland Waterways.
- RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
- IATA: International Air Transport Association.
- ICAO-TI: Technical Instructions for Safe Transport of Dangerous Goods by Air.
- IMDG: International Maritime Dangerous Goods.
- TWA: Time weighted average
- ATE: Estimated value of acute toxicity
- EC: European Community number
- CAS: Chemical Abstracts Service.
- LD50: Substance that causes 50% (half) death in the test animals group (Median Fatal Dose).
- LC50: Substance concentration causing 50% (half) death in the test animals group.
- EC50: Effective Concentration of the substance causing the maximum of 50%.
- PBT: Persistent, Bioaccumulative and Toxic substance.
- vPvB: Very Persistent and Very Bioaccumulative.
- GHS/CLP/SEA: Classification, labeling, packaging regulation
- DNEL: Derived No Effect Level
- PNEC: Predicted No Effect Concentration
- STOT: Specific Target Organ Toxicity

Not all acronyms listed above are referenced in this SDS.

**Further information**

- Distribute new edition to clients
- Update
- See section 1
- See section 2
- See section 3

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.

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