

**Solstice® 454B**

000000025450

Version 1.4

Revision Date 06.11.2025

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

Product name : Solstice® 454B  
SDS-number : 000000025450  
Type of product : Mixture  
Remarks : SDS according to Art. 31 of Regulation (EC) 1907/2006.

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

Use of the Substance/Mixture : Refrigerant  
Uses advised against : Consumer use

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

Company : SOLSTICE ADVANCED MATERIALS IRELAND LIMITED  
1st Floor, Liffey Trust Centre,  
117-126 Sheriff Street Upper  
D01 YC43 Dublin  
Ireland  
Solstice Advanced Materials  
US, Inc.  
115 Tabor Road  
Morris Plains, NJ 07950-2546  
USA  
Telephone : +353 1 447 9350  
For further information,  
please contact: : SafetyDataSheet@solstice.com

**1.4. Emergency telephone number**

Emergency telephone number : +1-703-527-3887 (ChemTrec-Transport)  
+1 303-739-1378 (Medical)  
: Poison Control Center:  
United Kingdom: (+44) 844 892 0111

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

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Flammable gases Category 1B  
 H221 Flammable gas.  
 Gases under pressure Liquefied gas  
 H280 Contains gas under pressure; may explode if heated.

**2.2. Label elements****REGULATION (EC) No 1272/2008**

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H221 Flammable gas. H280 Contains gas under pressure; may explode if heated.
Precautionary statements	:	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 In case of leakage, eliminate all ignition sources. P410 + P403 Protect from sunlight. Store in a well-ventilated place.
Special labelling of certain products:	:	Contains fluorinated greenhouse gases

**2.3. Other hazards**

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid evaporation of the liquid may cause frostbite. This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. 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.

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**SECTION 3: Composition/information on ingredients****3.1. Substances**

Not applicable

**3.2. Mixtures**

Chemical name	CAS-No. Index-No. EC-No.	Classification 1272/2008	Concentration	Remarks
Difluoromethane	75-10-5 200-839-4	Flam. Gas 1B; H221 Press. Gas ; H280	68,9 %	
2,3,3,3-Tetrafluoroprop-1-ene	754-12-1 468-710-7	Press. Gas Liquefied gas; H280 Flam. Gas 1B; H221	31,1 %	

Remaining components of this product are non-hazardous and/or are present at concentrations below reportable limits.

Occupational Exposure Limit(s), if available, are listed in Section 8.  
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***General advice:*

First aider needs to protect himself. Move out of dangerous area. Take off all contaminated clothing immediately.

*Inhalation:*

When inhaled remove to fresh air and seek medical aid. If breathing is irregular or stopped, administer artificial respiration. If unconscious, place in recovery position and seek medical advice.

*Skin contact:*

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Rapid evaporation of the liquid may cause frostbite. In case of contact with liquid, thaw frosted parts with water, then remove clothing carefully. Wash with plenty of water. Wash contaminated clothing before re-use. Consult a physician.

*Eye contact:*

Protect unharmed eye. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

*Ingestion:*

Ingestion is unlikely because of the physical properties and is not expected to be hazardous.

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

No data available

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

Adrenaline derivatives are contra-indicated. Treat symptomatically.

See Section 11 for more detailed information on health effects and symptoms.

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

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2. Special hazards arising from the substance or mixture**

Flammable gas.

Contents under pressure.

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Vapors may travel to areas away from work site before igniting/flashing back to vapor source.

Fire or intense heat may cause violent rupture of packages.

Cool closed containers exposed to fire with water spray.

Do not allow run-off from fire fighting to enter drains or water courses.

In case of fire hazardous decomposition products may be produced such as:

Hydrogen fluoride

Carbonyl halides

Carbon monoxide

Carbon dioxide (CO<sub>2</sub>)**5.3. Advice for firefighters**

Wear full protective clothing and self-contained breathing apparatus.

Evacuate personnel to safe areas. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Immediately evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Wear personal protective equipment. Unprotected persons must be kept away. Wear self-contained breathing apparatus and protective suit. Eliminate all ignition sources if safe to do so. Avoid skin contact with leaking liquid (danger of frostbite). Ventilate the area. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Ensure that the oxygen content is  $\geq 19.5\%$ .

**6.2. Environmental precautions**

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The product evaporates readily. Prevent product from entering drains.

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

Use explosion-proof equipment.

No sparking tools should be used.

Ventilate the area.

Allow to evaporate.

Inform the responsible authorities in case of gas leakage, or of entry into waterways, soil or drains.

Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.

**6.4. Reference to other sections**

For personal protection see section 8.

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

Exhaust ventilation at the object is necessary. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Use suitably rated equipment.

*Advice on protection against fire and explosion:*

Keep product and empty container away from heat and sources of ignition. Fire or intense heat may cause violent rupture of packages. Use suitably rated equipment.

*Hygiene measures:*

Provide adequate ventilation. Do not smoke. When using do not eat or drink.

**7.2. Conditions for safe storage, including any incompatibilities***Further information on storage conditions:*

Keep containers tightly closed in a cool, well-ventilated place. Containers should be protected against falling down. Protect from warmth. Keep away from direct sunlight. Keep only in the original container at temperature not exceeding 50°C

**7.3. Specific end use(s)**

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no additional data available

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational exposure limits:**

Components	Basis / Value type	Value / Form of exposure	Exceeding Factor	Remarks
Difluoromethane	HONEYWELL TWA	2.200 mg/m <sup>3</sup> 1.000 ppm		We are not aware of any national exposure limit.
2,3,3,3-Tetrafluoroprop-1-ene	WEEL TWA	500 ppm		
2,3,3,3-Tetrafluoroprop-1-ene	HONEYWELL TWA	500 ppm		

HONEYWELL - Limit established by Solstice Advanced Materials  
TWA - Time weighted average

**DNEL/ PNEC-Values**

Component	End-use/impact	Exposure duration	Value	Exposure routes	Remarks
Difluoromethane	Workers / Long-term systemic effects		7035 mg/m <sup>3</sup>	Inhalation	
Difluoromethane	Consumers / Long-term systemic effects		750 mg/m <sup>3</sup>	Inhalation	
2,3,3,3-Tetrafluoroprop-1-ene	Workers / Long-term systemic effects		950 mg/m <sup>3</sup>	Inhalation	
2,3,3,3-Tetrafluoroprop-1-ene	Consumers / Long-term systemic effects		113,1 mg/m <sup>3</sup>	Inhalation	
2,3,3,3-Tetrafluoroprop-1-	Workers /		186400	Inhalation	

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ene	Acute systemic effects		mg/m <sup>3</sup>		
2,3,3,3-Tetrafluoroprop-1-ene	Consumers / Acute systemic effects		186400 mg/m <sup>3</sup>	Inhalation	

Component	Environmental compartment / Value	Remarks
Difluoromethane	Fresh water: 0,142 mg/l	Assessment factor: 1000
Difluoromethane	Fresh water sediment: 0,534 mg/kg dw	
2,3,3,3-Tetrafluoroprop-1-ene	Fresh water: 0,1 mg/l	
2,3,3,3-Tetrafluoroprop-1-ene	Marine water: 0,01 mg/l	
2,3,3,3-Tetrafluoroprop-1-ene	Fresh water sediment: 1,51 mg/kg	
2,3,3,3-Tetrafluoroprop-1-ene	Marine sediment: 0,151 mg/kg	
2,3,3,3-Tetrafluoroprop-1-ene	Soil: 1,49 mg/kg	

**8.2. Exposure controls****Occupational exposure controls**

The Personal Protective Equipment must be in accordance with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, 511; safety shoes EN-ISO 20345.

**Engineering measures**

Highly effective exhaust ventilation

**Personal protective equipment***Respiratory protection:*

In case of insufficient ventilation wear suitable respiratory equipment.

Self-contained breathing apparatus (EN 133)

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

*Hand protection:*

Protective gloves against cold

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(EN 511)

*Eye protection:*  
Safety goggles

*Skin and body protection:*  
Wear suitable protective equipment.

**Environmental exposure controls**Handle in accordance with local environmental regulations and good industrial practices.

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

- (a) Physical state : gaseous
- (b) Colour : colourless
- (c) Odour : slight, original odour
- (d) Melting point/freezing point : No data available
- (e) Boiling point/boiling range : -50,9 °C
- (f) Flammability : Flammable gas.
- (g) Lower and upper explosion limit : Lower explosion limit  
11,25 %(V)  
23 °C
- : Upper explosion limit  
22 %(V)  
23 °C
- (h) Flash point : Not applicable
- (i) Auto-ignition temperature : 496 °C

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- (j) Decomposition temperature : Stable under normal conditions.
- (k) pH : neutral
- (l) Viscosity, kinematic : No data available
- (m) Solubility(ies) : Water solubility:  
No data available
- (n) Partition coefficient: n-octanol/water : No data available
- (o) Vapour pressure : 1.411 kPa  
at 21 °C
- (p) Density and / or relative density : No data available
- (q) Relative vapour density : 2,2  
(Air = 1.0)
- (r) Particle characteristics : No data available

**9.2 Other Information**

- Polymer characteristics : No data available
- Oxidizing properties : The substance or mixture is not classified as oxidizing.
- Evaporation rate : > 1  
Method: Compared to CCl<sub>4</sub>.
- Viscosity, dynamic : No data available

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

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Stable under normal conditions.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

Hazardous polymerisation does not occur.

**10.4. Conditions to avoid**

Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material.  
Heat, flames and sparks.

Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50 °C.

**10.5. Incompatible materials**

Alkali metals

Oxidizers (e.g. peroxide residues present in insufficiently cured rubbers)

Finely divided metal powders such as aluminum, magnesium, or zinc.

**10.6. Hazardous decomposition products**

In case of fire hazardous decomposition products may be produced such as:

Hydrogen fluoride

Carbonyl halides

Carbon monoxide

Carbon dioxide (CO<sub>2</sub>)

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

*Acute oral toxicity:*

Not applicable

study technically not feasible

*Acute dermal toxicity:*

Not applicable

study technically not feasible

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*Acute inhalation toxicity:*

LC50

Species: Rat

Value: &gt; 400000 ppm

Exposure time: 4 h

Method: OECD Test Guideline 403

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

LC0

Species: Rat

Value: &gt; 520000 ppm

Exposure time: 4 h

Method: OECD Test Guideline 403

Test substance: Difluoromethane (HFC-32)

*Acute toxicity (other routes of administration):*

No data available

**(b) Skin corrosion/irritation:**

Not applicable

study technically not feasible

**(c) Serious eye damage/eye irritation:**

Not applicable

study technically not feasible

**(d) Respiratory or skin sensitisation:**

Route of exposure: Dermal

Not applicable, as this product is a gas.

study technically not feasible

**(e) Germ cell mutagenicity:**

Test Method: Ames test

Result: negative

Method: OECD Test Guideline 471

Test substance: Difluoromethane (HFC-32)

Test Method: In vitro gene mutation study in mammalian cells

Cell type: Human lymphocytes

Result: negative

Method: OECD Test Guideline 473

Test substance: Difluoromethane (HFC-32)

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Test Method: In vitro gene mutation study in mammalian cells

Cell type: Chinese hamster lung cells

Result: negative

Method: OECD Test Guideline 473

Test substance: Difluoromethane (HFC-32)

Test Method: Chromosome aberration test in vitro

Result: negative

Method: OECD Test Guideline 473

Test substance: Difluoromethane (HFC-32)

Test Method: Ames test

Result: 20% and higher, positive in TA 100 and e. coli WP2 uvrA, negative in TA98, TA100, and TA1535.

Method: OECD Test Guideline 471

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Test Method: Chromosome aberration test in vitro

Cell type: Human lymphocytes

Result: negative

Method: OECD Test Guideline 473

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Note: Dose 760,000 ppm

Test Method: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Method: OECD Test Guideline 474

Test substance: Difluoromethane (HFC-32)

Test Method: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Dose: up to 200,000 ppm (4 hour)

Method: OECD Test Guideline 474

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Result: negative

Test Method: Unscheduled DNA synthesis

Dose: up to 50,000 ppm (4 weeks)

Method: OECD Test Guideline 486

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

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Result: negative

Test Method: Micronucleus test

Species: Rat

Dose: up to 50,000 ppm (4 weeks)

Method: OECD Test Guideline 474

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Result: negative

**(f) Carcinogenicity:**

Species: Rat

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Note: Not classified as a human carcinogen. Substance not expected to be a carcinogen based on available data.

**(g) Reproductive toxicity:**

Species: Rat

Application Route: Inhalation exposure

Exposure time: Two-generation reproductive toxicity

NOAEL,parent: 50,000 ppm

NOAEL,F1: 50,000 ppm

NOAEL,F2: 50,000 ppm

Species: Rat

Dose: NOAEL (No observed adverse effect level) - 50,000 ppm

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Species: Rat

Dose: NOEL - 50,000 ppm

Test substance: Difluoromethane (HFC-32)

Note: Did not show teratogenic effects in animal experiments.

Species: Rabbit

Dose: NOAEL (No observed adverse effect level) - 4,000 ppm

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Species: Rabbit

Dose: NOEL - 50,000 ppm

Test substance: Difluoromethane (HFC-32)

Note: Did not show teratogenic effects in animal experiments.

Test Type: Two-generation study

Method: OECD Test Guideline 416

Species: Rat

Route of Application: Inhalation

General Toxicity - Parent: NOAEC: 50.000 ppm

General Toxicity F1: NOAEC: 50.000 ppm

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Remarks: 2,3,3,3-Tetrafluoroprop-1-ene

Species: Rat

Route of Application: inhalation (gas)

General Toxicity Maternal: NOAEL: 49.800 ppm

Teratogenicity: NOAEL: 49.800 ppm

Embryo-foetal toxicity: NOAEL: 49.800 ppm

Remarks: Difluoromethane (HFC-32)Method: OECD Test Guideline 414

Species: Rabbit

Route of Application: inhalation (gas)

General Toxicity Maternal: NOAEL: 50.000 ppm

Teratogenicity: NOAEL: 50.000 ppm

Embryo-foetal toxicity: NOAEL: 50.000 ppm

Remarks: Difluoromethane (HFC-32)

**(h) STOT-single exposure:**

No data available

**(i) STOT - repeated exposure:**

Species: Rat

Application Route: Inhalation (whole body)

Exposure time: 91 d

NOAEL: 49100 ppm

Test substance: Difluoromethane (HFC-32)

Method: OECD Test Guideline 413

Note: Subchronic toxicity

Species: Rat

Application Route: Inhalation

Exposure time: 2 Weeks

NOEL: 50000

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Method: OECD Test Guideline 412

Species: Rat

Application Route: Inhalation (whole body)

Exposure time: 28 d

NOAEL: 49500 ppm

Test substance: Difluoromethane (HFC-32)

Method: OECD Test Guideline 412

Note: Subacute toxicity

Species: Rat

Application Route: Inhalation

Exposure time: 4 Weeks

NOAEL: 50000 ppm

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

Method: OECD Test Guideline 412

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Species: Rat  
Application Route: Inhalation  
Exposure time: 13 Weeks  
NOAEL: 50000 ppm  
Test substance: 2,3,3,3-Tetrafluoroprop-1-ene  
Method: OECD Test Guideline 413  
Species: Rabbit, male  
Application Route: Inhalation  
Exposure time: 28 d  
NOEL: 500  
Test substance: 2,3,3,3-Tetrafluoroprop-1-ene  
Method: OECD Test Guideline 412  
Note: There are no observed toxicological effects, which result in classification as a specific target organ toxicant.

Species: Rabbit, female  
Application Route: Inhalation  
Exposure time: 28 d  
NOEL: 1000  
Test substance: 2,3,3,3-Tetrafluoroprop-1-ene  
Method: OECD Test Guideline 412  
Note: There are no observed toxicological effects, which result in classification as a specific target organ toxicant.

Species: Mini-pig  
Application Route: Inhalation  
Exposure time: 28 d  
NOAEL: 10000 ppm  
Test substance: 2,3,3,3-Tetrafluoroprop-1-ene  
Note: highest exposure tested

**(j) Aspiration hazard:**

Not applicable, as this product is a gas.

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

No data available

*Other information:*

No data available

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**SECTION 12: Ecological information****12.1. Toxicity***Toxicity to fish:*

LC50

Species: Cyprinus carpio (Carp)

Value: &gt; 197 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

No demonstrable toxic effect in saturated solution.

LC50

Species: not specified

Value: 1.507 mg/l

Exposure time: 96 h

Test substance: Difluoromethane (HFC-32)

*Toxicity to aquatic plants:*

EC50

Growth rate

Species: Algae

Value: 142 mg/l

Exposure time: 96 h

Test substance: Difluoromethane (HFC-32)

EC50

Species: Scenedesmus capricornutum (fresh water algae)

Value: &gt; 100 mg/l

Method: OECD Test Guideline 201

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

EC50

Biomass

Species: Selenastrum capricornutum (green algae)

Value: &gt; 114 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Test substance: Difluoromethane (HFC-32)

EC50

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## Growth rate

Species: *Selenastrum capricornutum* (green algae)

Value: &gt; 114 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Test substance: Difluoromethane (HFC-32)

## NOEC

Biomass

Species: *Selenastrum capricornutum* (green algae)

Value: 13,2 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Test substance: Difluoromethane (HFC-32)

## NOEC

Growth rate

Species: *Selenastrum capricornutum* (green algae)

Value: 13,2 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Test substance: Difluoromethane (HFC-32)

*Toxicity to aquatic invertebrates:*

## EC50

Species: *Daphnia magna* (Water flea)

Value: &gt; 83 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

## EC50

Species: *Daphnia* sp. (Crustacea)

Value: 652 mg/l

Exposure time: 48 h

Test substance: Difluoromethane (HFC-32)

## EC50

Immobilization

Species: *Daphnia magna* (Water flea)

Value: &gt; 97,9 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Test substance: Difluoromethane (HFC-32)

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**12.2. Persistence and degradability***Biodegradability:*

Result: Not readily biodegradable.

Method: OECD Test Guideline 301F

Test substance: 2,3,3,3-Tetrafluoroprop-1-ene

*Biodegradability:*

Biodegradation: 5 %

Exposure time: 28 d

Method: OECD 301 D

Test substance: Difluoromethane (HFC-32)

**12.3. Bioaccumulative potential**

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

Product does not contain substances which are persistent, bioaccumulative, and toxic (PBT) at levels of 0.1% or higher.

Product does not contain substances which are very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6. Endocrine disrupting properties**

No data available

**12.7. Other adverse effects**

Accumulation in aquatic organisms is unlikely.

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

Dispose according to legal requirements.

*Packaging:*

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Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

*Further information:*

Provisions relating to waste:

EC Directive 2006/12/EC; 2008/98/EEC

Regulation No. 1013/2006

For personal protection see section 8.

**SECTION 14: Transport information****14.1 UN number or ID number**

ADR/RID:3161

IMDG:3161

IATA:3161

**14.2 UN proper shipping name**

ADR/RID:LIQUEFIED GAS, FLAMMABLE, N.O.S.(DIFLUOROMETHANE, R-1234yf)

IMDG:LIQUEFIED GAS, FLAMMABLE, N.O.S.(DIFLUOROMETHANE, R-1234yf)

IATA:Liquefied gas, flammable, n.o.s.(Difluoromethane, R-1234yf)

**14.3 Transport hazard class(es)**

ADR/RID:2.1

IMDG: 2.1

IATA: 2.1

**14.4 Packaging group**

No data available

**14.5 Environmental hazards**

ADR/RID:no

Marine pollutant: no

**14.6 Special precautions for user**

IMDG Code segregation group according chapter 3.1.4.4 : NONE,

**14.7 Maritime transport in bulk according to IMO instruments**

No data available

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

Basis	Value	Remarks
Directive 2012/18/EC SEVESO III Listed in Regulation : P2: Flammable gases	Quantity: 10 t Quantity: 50 t	

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Substances of very high concern (SVHC)		This product does not contain substances of very high concern according to Regulation (EC) No Article 57 above the respective regulatory 1907/2006 (REACH), concentration limit of $\geq 0.1$ % (w/w).
Regulation (EC) No. 1907/2006, Annex XIV		Not listed
Regulation (EC) No. 1907/2006, Annex XVII Number in Regulation: 40		Listed

*Global warming potential :*  
466

**Other inventory information**

USA. List of Active Substances on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory, as amended  
All substances listed as active on the TSCA inventory

Australian Inventory of Industrial Chemicals  
All components are listed on the inventory, regulatory obligations/restrictions apply

Canada. Domestic Substances List (DSL), as amended  
All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List  
On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI)  
On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS)  
On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC)  
On the inventory, or in compliance with the inventory

Thailand. Existing Chemicals Inventory from FDA (TECI List)

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On the inventory, or in compliance with the inventory

Taiwan Chemical Substance Inventory (TCSI)

On the inventory, or in compliance with the inventory

**15.2 Chemical safety assessment**

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information****Text of H-statements referred to under heading 3**

Difluoromethane	:	H221	Flammable gas.
		H280	Contains gas under pressure; may explode if heated.
2,3,3,3-Tetrafluoroprop-1-ene	:	H280	Contains gas under pressure; may explode if heated.
		H221	Flammable gas.

**Further information**

All directives and regulations refer to amended versions.

Vertical lines in the left hand margin indicate a relevant amendment from the previous version.

Abbreviations:

EC European Community

CAS Chemical Abstracts Service

DNEL Derived no effect level

PNEC Predicted no effect level

vPvB Very persistent and very bioaccumulative substance

PBT Persistent, bioaccumulative und toxic substance

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. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user.

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This information should not constitute a guarantee for any specific product properties.  
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