

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Vertrel™ X-DF specialty fluid

SDS-Identcode : 130000000179

#### Manufacturer or supplier's details

Company : The Chemours Chemical (Shanghai) Co., Ltd.

Address : 9F, SCG Parkside, 868 Yinghua Road, Pudong New District  
201204, Shanghai, China

Telephone : 86 400 8056 528

Emergency telephone number : 86 532 8388 9090

E-mail address : SDS.ChinaPSR@chemours.com

Telefax : 86 21 2612 0862

#### Recommended use of the chemical and restrictions on use

Recommended use : Drying agent

Restrictions on use : For professional and industrial installation and use only.

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

<b>Appearance</b>	: liquid
<b>Colour</b>	: colourless
<b>Odour</b>	: ether-like

Causes mild skin irritation. Causes eye irritation. May cause drowsiness or dizziness. Harmful to aquatic life with long lasting effects.

#### GHS Classification

Skin corrosion/irritation : Category 3

Serious eye damage/eye irritation : Category 2B

Specific target organ toxicity - single exposure : Category 3

Short-term (acute) aquatic hazard : Category 3

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519




## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

---

Long-term (chronic) aquatic hazard : Category 3

### GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : H316 Causes mild skin irritation.  
H320 Causes eye irritation.  
H336 May cause drowsiness or dizziness.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P261 Avoid breathing mist or vapours.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.

**Response:**  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.

**Storage:**  
P405 Store locked up.

**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### Physical and chemical hazards

Not classified based on available information.

### Health hazards

Causes mild skin irritation. Causes eye irritation. May cause drowsiness or dizziness.

### Environmental hazards

Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

### Other hazards which do not result in classification

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

Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.

Rapid evaporation of the product may cause frostbite.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

Chemical name	CAS-No.	Concentration (% w/w)
Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)-1,1,1,2,2,3,4,5,5,5-decafluoropentane	138495-42-8	>= 50 -< 70
Trans-Dichloroethylene	156-60-5	>= 30 -< 50

### 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.  
Remove contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
If easy to do, remove contact lens, if worn.  
Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention if symptoms occur.  
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause cardiac arrhythmia.  
Skin contact may provoke the following symptoms:  
Dermatitis  
Irritation  
Pain

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

superficial burning sensation  
Itching  
Redness  
Swelling of tissue  
Rash  
Discomfort  
Eye contact may provoke the following symptoms  
Irritation  
tearing  
Discomfort  
Redness  
Effects of breathing high concentrations of vapour may include:  
Tiredness  
Drowsiness  
central nervous system effects  
Convulsions  
Dizziness  
confusion  
Adverse effects from repeated inhalation may include  
central nervous system effects  
Aspiration may cause pulmonary oedema and pneumonitis.  
Causes mild skin irritation.  
Causes eye irritation.  
May cause drowsiness or dizziness.

Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	:	Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

### 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire-fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Hydrogen fluoride carbonyl fluoride Carbon oxides Chlorine compounds

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue:
1.3	2023/12/05	10821044-00004	2023/04/21
			Date of first issue: 2022/07/26

- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

### 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

### 7. HANDLING AND STORAGE

#### Handling

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.  
Avoid breathing mist or vapours.

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

Do not swallow.  
Do not get in eyes.  
Wash skin thoroughly after handling.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Take care to prevent spills, waste and minimize release to the environment.

Avoidance of contact : None.

### Storage

Conditions for safe storage : Do not expose drums to direct heat or temperature above 46°C (115°F) to avoid pressurizing and possibly distorting the drums.  
Material should not be dispensed by pouring from pail/drum shipping containers containing 5 gallons or more. The use of a drum pump is recommended for dispensing from pail/drum shipping containers with 5 gallons or more, except for smaller containers where adequate ventilation can be used to manage the exposure.  
Keep in properly labelled containers.  
Store locked up.  
Keep in a cool, well-ventilated place.  
Store in accordance with the particular national regulations.

Materials to avoid : No special restrictions on storage with other products.

Recommended storage temperature : < 46 °C

Further information on storage stability : The product has an indefinite shelf life when stored properly.

Packaging material : Unsuitable material: None known.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane	138495-42-8	TWA	225 ppm 2,320 mg/m3	WEEL
		STEL	700 ppm	WEEL

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue:
1.3	2023/12/05	10821044-00004	2023/04/21
			Date of first issue: 2022/07/26

			7,217 mg/m3	
Trans-Dichloroethylene	156-60-5	PC-TWA	800 mg/m3	CN OEL
		TWA	200 ppm	ACGIH

**Engineering measures** : Minimize workplace exposure concentrations.  
If sufficient ventilation is unavailable, use with local exhaust ventilation.

### Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Organic gas and low boiling vapour type

Eye/face protection : Wear the following personal protective equipment:  
Safety goggles

Skin and body protection : Wear the following personal protective equipment:  
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.

#### Hand protection

Material : Viton®  
Glove thickness : 0.7 mm  
Wearing time : 120 min

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often!

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
When using do not eat, drink or smoke.  
Wash contaminated clothing before re-use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

---

Colour	:	colourless
Odour	:	ether-like
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	< -50 °C
Initial boiling point and boiling range	:	39 °C (1,013 hPa)
Flash point	:	Method: Pensky-Martens closed cup does not flash
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	Upper flammability limit Method: ASTM E681 None.
Lower explosion limit / Lower flammability limit	:	Lower flammability limit Method: ASTM E681 None.
Vapour pressure	:	619 hPa (25 °C)
Relative vapour density	:	5.4
Density	:	1.41 g/cm <sup>3</sup> (25 °C) 1.47 g/cm <sup>3</sup> (0 °C) 1.35 g/cm <sup>3</sup> (50 °C)
Solubility(ies) Water solubility	:	15 g/l (25 °C)
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available



# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

Decomposition temperature : No data available

Viscosity

Viscosity, dynamic : 0.49 mPa.s ( 25 °C)

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Particle size : Not applicable

### 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : None known.

Conditions to avoid : None known.

Incompatible materials : None.

Hazardous decomposition products : No hazardous decomposition products are known.

### 11. TOXICOLOGICAL INFORMATION

Exposure routes : Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Not classified based on available information.

#### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

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Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 401

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

Acute inhalation toxicity : LC50 (Rat): 114.428 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

No observed adverse effect concentration (Dog): 5000 ppm  
Test atmosphere: gas  
Method: Cardiac sensitisation study

Lowest observed adverse effect concentration (Dog): > 5000 ppm  
Test atmosphere: gas  
Method: Cardiac sensitisation study

Cardiac sensitisation threshold limit (Dog): > 51,544 mg/m3  
Test atmosphere: gas  
Method: Cardiac sensitisation study

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Method: OECD Test Guideline 402

### Trans-Dichloroethylene:

Acute oral toxicity : LD50 (Rat): 7,902 mg/kg  
Method: OECD Test Guideline 420

Acute inhalation toxicity : LC50 (Rat): 95.5 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

Lowest observed adverse effect concentration (Dog): 250000 ppm  
Test atmosphere: gas

Cardiac sensitisation threshold limit (Dog): 991,309 mg/m3  
Test atmosphere: gas

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Method: OECD Test Guideline 402

### Skin corrosion/irritation

Causes mild skin irritation.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

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Species : Rabbit  
Method : OECD Test Guideline 404

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

---

Result : No skin irritation

### Trans-Dichloroethylene:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Mild skin irritation

### Serious eye damage/eye irritation

Causes eye irritation.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

### Trans-Dichloroethylene:

Species : Rabbit  
Result : Irritation to eyes, reversing within 7 days  
Method : OECD Test Guideline 405

### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified based on available information.

#### Respiratory sensitisation

Not classified based on available information.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Test Type : Buehler Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : negative

### Germ cell mutagenicity

Not classified based on available information.

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue:
1.3	2023/12/05	10821044-00004	2023/04/21
			Date of first issue: 2022/07/26

---

### **Components:**

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 474  
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

### **Trans-Dichloroethylene:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

### **Carcinogenicity**

Not classified based on available information.

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

### Reproductive toxicity

Not classified based on available information.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

- |                                    |   |  |
|------------------------------------|---|--|
| Effects on fertility               | : | Test Type: One-generation reproduction toxicity study<br>Species: Rat<br>Application Route: inhalation (vapour)<br>Method: OECD Test Guideline 415<br>Result: negative           |
| Effects on foetal development      | : | Test Type: Prenatal development toxicity study (teratogenicity)<br>Species: Rat<br>Application Route: inhalation (vapour)<br>Method: OECD Test Guideline 414<br>Result: negative |
| Reproductive toxicity - Assessment | : | Weight of evidence does not support classification for reproductive toxicity   |

### Trans-Dichloroethylene:

- |                               |   |  |
|-------------------------------|---|--|
| Effects on foetal development | : | Test Type: Embryo-foetal development<br>Species: Rat<br>Application Route: Inhalation<br>Method: OECD Test Guideline 414<br>Result: negative |
|-------------------------------|---|--|

### STOT - single exposure

May cause drowsiness or dizziness.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

- |                 |   |  |
|-----------------|---|--|
| Exposure routes | : | Ingestion  |
| Assessment      | : | No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less |
| Exposure routes | : | Skin contact   |
| Assessment      | : | No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less |
| Exposure routes | : | inhalation (vapour)  |
| Assessment      | : | No significant health effects observed in animals at concentrations of 20 mg/l/4h or less    |

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

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### Trans-Dichloroethylene:

Assessment : May cause drowsiness or dizziness.

### STOT - repeated exposure

Not classified based on available information.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Exposure routes : inhalation (vapour)  
Assessment : No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less.

### Trans-Dichloroethylene:

Exposure routes : Inhalation  
Assessment : No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

Exposure routes : Ingestion  
Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

### Repeated dose toxicity

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Species : Rat, male and female  
NOAEL : 15.463 mg/l  
LOAEL : 20.618 mg/l  
Application Route : inhalation (vapour)  
Exposure time : 90 Days  
Method : OECD Test Guideline 413

### Trans-Dichloroethylene:

Species : Rat, male and female  
NOAEL : 4000 ppm  
LOAEL : > 4000 ppm  
Application Route : Inhalation  
Exposure time : 90 Days  
Method : OECD Test Guideline 413

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

Species	: Rat, male and female
NOAEL	: 3,210 mg/kg
LOAEL	: > 3,210 mg/kg
Application Route	: Ingestion
Exposure time	: 98 Days
Method	: OECD Test Guideline 408

### Aspiration toxicity

Not classified based on available information.

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

No aspiration toxicity classification

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): 13 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
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Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 10.6 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
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Toxicity to algae/aquatic plants	: EC50 (Selenastrum capricornutum (green algae)): > 120 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
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NOEC (Scenedesmus capricornutum (fresh water algae)): 120 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 1.72 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
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### Trans-Dichloroethylene:

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue:
1.3	2023/12/05	10821044-00004	2023/04/21
			Date of first issue: 2022/07/26

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 135 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 220 mg/l  
Exposure time: 48 h  
Method: EPA-660/3-75-009

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 36.36 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 201

### Persistence and degradability

#### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Biodegradability : Result: Not readily biodegradable.  
Method: OECD Test Guideline 301D

#### **Trans-Dichloroethylene:**

Biodegradability : Result: not rapidly degradable  
Method: OECD Test Guideline 301D

### Bioaccumulative potential

#### Components:

Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)- 1,1,1,2,2,3,4,5,5,5-decafluoropentane

:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 2.4 (24 °C)

#### **Trans-Dichloroethylene:**

Partition coefficient: n-octanol/water : log Pow: 2.06

### Mobility in soil

No data available



# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

### Other adverse effects

No data available

## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues	:	Do not dispose of waste into sewer.  Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### International Regulations

#### UNRTDG

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable

#### IATA-DGR

UN/ID No.	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
Packing instruction (cargo aircraft)	:	Not applicable
Packing instruction (passenger aircraft)	:	Not applicable

#### IMDG-Code

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
EmS Code	:	Not applicable
Marine pollutant	:	Not applicable

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

### National Regulations

#### GB 6944/12268

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable

#### Special precautions for user

Not applicable

## 15. REGULATORY INFORMATION

### National regulatory information

#### Law on the Prevention and Control of Occupational Diseases

Montreal Protocol	:	Reaction mass of (3R,4R)-1,1,1,2,2,3,4,5,5,5-decafluoropentane and (3S,4S)-1,1,1,2,2,3,4,5,5,5-decafluoropentane
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#### Yangtze River Protection Law

This product does not contain any dangerous chemicals prohibited for inland river transport.

## 16. OTHER INFORMATION

Revision Date	:	2023/12/05
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Other information	:	Vertrel™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC. Chemours™ and the Chemours Logo are trademarks of The Chemours Company. Before use read Chemours safety information. For further information contact the local Chemours office or nominated distributors.
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#### Further information

Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <a href="http://echa.europa.eu/">http://echa.europa.eu/</a>
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Date format	:	yyyy/mm/dd
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#### Full text of other abbreviations

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CN OEL	:	Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.
WEEL	:	Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
CN OEL / PC-TWA	:	Permissible concentration - time weighted average
WEEL / STEL	:	Short term exposure limit
WEEL / TWA	:	8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

### Disclaimer

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



## Vertrel™ X-DF specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/21
1.3	2023/12/05	10821044-00004	Date of first issue: 2022/07/26

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