

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Vertrel™ X-DF specialty fluid

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 12/05/2023  |
| 5.6     | 03/05/2025     | 1325014-00045 | Date of first issue: 02/27/2017 |

### SECTION 1. IDENTIFICATION

Product name : Vertrel™ X-DF specialty fluid

SDS-Identcode : 130000000179

Other means of identification : No data available

#### Manufacturer or supplier's details

Company name of supplier : The Chemours Canada Company

Address : 151 Bloor Street West - 12th Floor  
Toronto, ON M5S 1S4 Canada

Telephone : 1-844-773-CHEM (2436)

Emergency telephone : 1-866-595-1473 (24 hours)

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

Recommended use : Drying agent

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

### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the Hazardous Products Regulations

Eye irritation : Category 2B

Specific target organ toxicity : Category 3  
- single exposure

#### GHS label elements

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H320 Causes eye irritation.  
H336 May cause drowsiness or dizziness.

Precautionary Statements : **Prevention:**  
P261 Avoid breathing mist or vapors.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.

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### Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a 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.

P337 + P313 If eye irritation persists: Get medical attention.

### Storage:

P405 Store locked up.

### Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

### Other hazards

Vapors 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.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

| Chemical name                         | Common Name/Synonym | CAS-No.     | Concentration (% w/w) |
|---------------------------------------|---------------------|-------------|-----------------------|
| 1,1,1,2,2,3,4,5,5,5-Decafluoropentane | No data available   | 138495-42-8 | $\geq 60 - < 80$ *    |
| Trans-Dichloroethylene                | No data available   | 156-60-5    | $\geq 30 - < 60$ *    |

\* Actual concentration or concentration range is withheld as a trade secret

## SECTION 4. FIRST AID MEASURES

|                         |  |
|-------------------------|--|
| General advice          | : In the case of accident or if you feel unwell, seek medical advice immediately.<br>When symptoms persist or in all cases of doubt seek medical advice.   |
| If inhaled              | : If inhaled, remove to fresh air.<br>Get medical attention if symptoms occur.   |
| In case of skin contact | : In case of contact, immediately flush skin with plenty of water.<br>Remove contaminated clothing and shoes.<br>Get medical attention.<br>Wash clothing before reuse.<br>Thoroughly clean shoes before reuse. |
| In case of eye contact  | : In case of contact, immediately flush eyes with plenty of water  |

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- 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  
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 vapor 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 edema and pneumonitis.  
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, ca-  
techolamine drugs, such as epinephrine, that may be used in  
situations of emergency life support should be used with spe-  
cial caution.

### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

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

### SECTION 6. ACCIDENTAL RELEASE MEASURES

- |   |   |   |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.<br>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).  |
| Environmental precautions   | : | Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Prevent spreading over a wide area (e.g., by containment or oil barriers).<br>Retain and dispose of contaminated wash water.<br>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.<br>For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.<br>Clean up remaining materials from spill with suitable absorbent.<br>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.<br>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. |

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### SECTION 7. HANDLING AND STORAGE

- 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 vapors.  
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.
- 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 labeled 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.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

| Components                            | CAS-No.     | Value type<br>(Form of exposure) | Control parameters / Permissible concentration | Basis     |
|---------------------------------------|-------------|----------------------------------|--|-----------|
| 1,1,1,2,2,3,4,5,5,5-Decafluoropentane | 138495-42-8 | TWA                              | 225 ppm<br>2,320 mg/m <sup>3</sup>             | WEEL      |
|                                       |             | STEL                             | 700 ppm<br>7,217 mg/m <sup>3</sup>             | WEEL      |
| Trans-Dichloroethylene                | 156-60-5    | TWA                              | 200 ppm  | CA AB OEL |

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|  |  |     |                       |           |
|--|--|-----|-----------------------|-----------|
|  |  |     | 793 mg/m <sup>3</sup> |           |
|  |  | TWA | 200 ppm               | CA BC 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 : Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown.

#### 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 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!

Eye 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.

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.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : colorless

Odor : ether-like

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|  |   |   |
|--|---|---|
| Odor Threshold                                   | : | No data available   |
| pH   | : | No data available   |
| Melting point/freezing point                     | : | < -50 °C  |
| Initial boiling point and boiling range          | : | 39 °C<br>(1,013 hPa)  |
| Flash point                                      | : | Method: Pensky-Martens closed cup<br>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<br>Method: ASTM E681<br>None.  |
| Lower explosion limit / Lower flammability limit | : | Lower flammability limit<br>Method: ASTM E681<br>None.  |
| Vapor pressure                                   | : | 619 hPa (25 °C)   |
| Relative vapor density                           | : | 5.4   |
| Density  | : | 1.41 g/cm <sup>3</sup> (25 °C)<br><br>1.47 g/cm <sup>3</sup> (0 °C)<br><br>1.35 g/cm <sup>3</sup> (50 °C) |
| Solubility(ies)<br>Water solubility              | : | 15 g/l (25 °C)  |
| Partition coefficient: n-octanol/water           | : | Not applicable  |
| Autoignition temperature                         | : | No data available   |
| Decomposition temperature                        | : | No data available   |
| Viscosity<br>Viscosity, dynamic                  | : | 0.49 mPa.s (25 °C)  |
| Viscosity, kinematic                             | : | No data available   |
| Explosive properties                             | : | Not explosive   |

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

Particle characteristics  
Particle size : Not applicable

### SECTION 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.

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Not classified based on available information.

#### Components:

##### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane:**

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

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

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

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



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Cardiac sensitisation threshold limit (Dog): > 51,544 mg/m<sup>3</sup>

Test atmosphere: gas

Method: Cardiac sensitization 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: vapor  
Method: OECD Test Guideline 403

Lowest observed adverse effect concentration (Dog): 250000 ppm

Test atmosphere: gas

Cardiac sensitisation threshold limit (Dog): 991,309 mg/m<sup>3</sup>

Test atmosphere: gas

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

### Skin corrosion/irritation

Not classified based on available information.

### Components:

#### 1,1,1,2,2,3,4,5,5,5-Decafluoropentane:

Species : Rabbit  
Method : OECD Test Guideline 404  
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:

#### 1,1,1,2,2,3,4,5,5,5-Decafluoropentane:

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

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### Trans-Dichloroethylene:

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

### Respiratory or skin sensitization

#### Skin sensitization

Not classified based on available information.

#### Respiratory sensitization

Not classified based on available information.

### Components:

#### 1,1,1,2,2,3,4,5,5,5-Decafluoropentane:

|                    |   |                         |
|--------------------|---|-------------------------|
| Test Type          | : | Buehler Test            |
| Routes of exposure | : | Skin contact            |
| Species            | : | Guinea pig              |
| Method             | : | OECD Test Guideline 406 |
| Result             | : | negative                |

### Germ cell mutagenicity

Not classified based on available information.

### Components:

#### 1,1,1,2,2,3,4,5,5,5-Decafluoropentane:

|                                     |   |   |
|-------------------------------------|---|---|
| Genotoxicity in vitro               | : | Test Type: Bacterial reverse mutation assay (AMES)<br>Method: OECD Test Guideline 471<br>Result: negative<br><br>Test Type: In vitro mammalian cell gene mutation test<br>Method: OECD Test Guideline 476<br>Result: negative |
| Genotoxicity in vivo                | : | Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)<br>Species: Rat<br>Application Route: inhalation (vapor)<br>Method: OECD Test Guideline 474<br>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)<br>Method: OECD Test Guideline 471<br>Result: negative<br><br>Test Type: In vitro mammalian cell gene mutation test<br>Method: OECD Test Guideline 476 |
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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.

### Reproductive toxicity

Not classified based on available information.

### Components:

#### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapor)  
Method: OECD Test Guideline 415  
Result: negative

Effects on fetal development : Test Type: Prenatal development toxicity study (teratogenicity)  
Species: Rat  
Application Route: inhalation (vapor)  
Method: OECD Test Guideline 414  
Result: negative

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

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

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Inhalation  
Method: OECD Test Guideline 414  
Result: negative

### **STOT-single exposure**

May cause drowsiness or dizziness.

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### Components:

#### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane:**

Routes of exposure : Ingestion  
Assessment : No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

Routes of exposure : Skin contact  
Assessment : No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

Routes of exposure : inhalation (vapor)  
Assessment : No significant health effects observed in animals at concentrations of 20 mg/l/4h or less

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

Assessment : May cause drowsiness or dizziness.

### **STOT-repeated exposure**

Not classified based on available information.

### Components:

#### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane:**

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

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

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

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

### **Repeated dose toxicity**

### Components:

#### **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 (vapor)  
Exposure time : 90 Days  
Method : OECD Test Guideline 413

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

Species : Rat, male and female

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NOAEL : 4000 ppm  
LOAEL : > 4000 ppm  
Application Route : Inhalation  
Exposure time : 90 Days  
Method : OECD Test Guideline 413

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:

#### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane:**

No aspiration toxicity classification

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

### Components:

#### **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

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 10.6 mg/l  
aquatic invertebrates : Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 (Selenastrum capricornutum (green algae)): > 120 mg/l  
plants : Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Scenedesmus capricornutum (fresh water algae)): 120 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

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

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

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 135 mg/l  
Exposure time: 96 h

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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:

##### **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:

##### **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

### Other adverse effects

No data available

## SECTION 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

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handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.

### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

##### UNRTDG

Not regulated as a dangerous good

##### IATA-DGR

Not regulated as a dangerous good

##### IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

#### Domestic regulation

##### TDG

Not regulated as a dangerous good

#### Special precautions for user

Not applicable

### SECTION 15. REGULATORY INFORMATION

#### International Regulations

Montreal Protocol : 1,1,1,2,2,3,4,5,5,5-  
Decafluoropentane

#### Additional regulatory information

1,2-Butylene oxide 106-88-7

This product contains CAS 106-88-7 which is subject to a Significant New Activity as per Canada Gazette, Part II: Vol. 145, No. 26, Page 90.

### SECTION 16. 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.

#### Full text of other abbreviations

|           |   |   |
|-----------|---|---|
| ACGIH     | : | USA. ACGIH Threshold Limit Values (TLV)                             |
| CA AB OEL | : | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| CA BC OEL | : | Canada. British Columbia OEL  |

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Vertrel™ X-DF specialty fluid

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 12/05/2023  |
| 5.6     | 03/05/2025     | 1325014-00045 | Date of first issue: 02/27/2017 |

|                 |   |  |
|-----------------|---|--|
| WEEL            | : | Workplace Environmental Exposure Levels (WEEL) |
| ACGIH / TWA     | : | 8-hour, time-weighted average                  |
| CA AB OEL / TWA | : | 8-hour Occupational exposure limit             |
| CA BC OEL / TWA | : | 8-hour 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

|  |   |   |
|--|---|---|
| Sources of key data used to compile the Material 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> |
|--|---|---|

|               |   |            |
|---------------|---|------------|
| Revision Date | : | 03/05/2025 |
| Date format   | : | mm/dd/yyyy |

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.



# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Vertrel™ X-DF specialty fluid

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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.

CA / Z8