

SAFETY DATA SHEET



Vertrel™ XP specialty fluid

Version 8.1	Revision Date: 2025/03/05	SDS Number (Internal): 1324978-00049	Date of last issue: 2024/10/16 Date of first issue: 2017/02/27
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Vertrel™ XP specialty fluid

SDS-Identcode : 130000000164

Recommended use of the chemical and restrictions on use

Recommended use : Cleaning agent

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

Manufacturer or supplier's details

Company : Chemours Korea Inc.

Address : 12FL, Majestarcity Tower 1, 12, Seocho-daero 38-gil, Seocho-gu, Seoul 06655, Korea

Telephone : 82-2-2015-5000

Emergency telephone number : 080-880-0454

Telefax : 82-2-2015-5091

2. HAZARDS IDENTIFICATION

GHS Classification

Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms : Not applicable

Signal word : Not applicable

Hazard statements : H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P273 Avoid release to the environment.
Disposal:
P501 Dispose of contents/ container according to waste-related laws

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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	Common 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	No data available	138495-42-8	>= 90 - <= 100
Propan-2-ol	Isopropyl alcohol	67-63-0	>= 1 - < 10

4. FIRST AID MEASURES

- | | |
|---|--|
| In case of eye contact | : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists. |
| In case of skin contact | : Wash with water and soap as a precaution.
Get medical attention if symptoms occur. |
| If inhaled | : If inhaled, remove to fresh air.
Get medical attention if symptoms occur. |
| 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 |

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Pain
tearing
Swelling of tissue
Redness
Impairment of vision
Inhalation may provoke the following symptoms:
Unconsciousness
Drowsiness
Lack of coordination
confusion
Dizziness
Central nervous system depression
Effects of breathing high concentrations of vapour may include:
Tiredness
Drowsiness
central nervous system effects
Convulsions
Adverse effects from repeated inhalation may include
central nervous system effects
Aspiration may cause pulmonary oedema and pneumonitis.

Protection of first-aiders : No special precautions are necessary for first aid responders.

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 and unsuitable extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
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

Specific extinguishing method : Use extinguishing measures that are appropriate to local cir-

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cumstances 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 : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : 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

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment

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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 labelled containers.
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.

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 7,217 mg/m3	WEEL
Propan-2-ol	67-63-0	TWA	200 ppm	KR OEL
		STEL	400 ppm	KR OEL
		TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH

Other ingredients, which are listed in section 3 but not listed in this section, do not have established occupational exposure limit values.

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
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Propan-2-ol	67-63-0	Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI
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Engineering measures : Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

Personal protective equipment. Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

Respiratory protection : Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown.

Eye protection : Wear the following personal protective equipment:
Safety glasses

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!

Skin and body protection : Skin should be washed after contact.

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

Colour : colourless

Odour : slight, ether-like

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Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	< -80.0 °C
Initial boiling point and boiling range	:	52 °C (1,013 hPa)
Flash point	:	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	:	93.3 hPa (0 °C)
Solubility(ies) Water solubility	:	partly soluble
Relative vapour density	:	7.86
Density	:	1.530 g/cm ³ (25 °C) 1.591 g/cm ³ (0 °C) 1.456 g/cm ³ (50 °C)
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	0.68 mPa.s (25 °C)

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Viscosity, kinematic	: No data available
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Molecular weight	: No data available
Particle characteristics Particle size	: Not applicable

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	: 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

Information on likely routes of exposure	: Inhalation Skin contact Ingestion Eye contact
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Health hazard information

Acute toxicity

No data available

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
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Acute inhalation toxicity	: LC50 (Rat): 114.428 mg/l
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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

Propan-2-ol:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 25 mg/l
Exposure time: 6 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation

No data available

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
Method	: OECD Test Guideline 404
Result	: No skin irritation

Propan-2-ol:

Species	: Rabbit
Result	: No skin irritation

Serious eye damage/eye irritation

No data available

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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

Propan-2-ol:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days

Respiratory or skin sensitisation

Respiratory sensitisation

No data available

Skin sensitisation

No data available

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

Propan-2-ol:

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

Carcinogenicity

No data available

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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 data available

Propan-2-ol:

No data available

Species	:	Rat
Application Route	:	inhalation (vapour)
Exposure time	:	104 weeks
Method	:	OECD Test Guideline 451
Result	:	negative

Germ cell mutagenicity

No data available

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 data available

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.

Propan-2-ol:

No data available

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES)
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Result: negative

Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Reproductive toxicity

No data available

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 data available

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

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

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

Propan-2-ol:

No data available

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative

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STOT - single exposure

No data available

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

Propan-2-ol:

Assessment	: May cause drowsiness or dizziness.
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STOT - repeated exposure

No data available

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.

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

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Propan-2-ol:

Species	: Rat
NOAEL	: 12.5 mg/l
Application Route	: inhalation (vapour)
Exposure time	: 104 Weeks

Aspiration toxicity

No data available

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

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

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

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

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

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

Propan-2-ol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 9,640 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 24 h

Toxicity to microorganisms : EC50 (Pseudomonas putida): > 1,050 mg/l
Exposure time: 16 h

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

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

Propan-2-ol:

Biodegradability : Result: rapidly degradable

BOD/COD : BOD: 1,19 (BOD5)COD: 2,23BOD/COD: 53 %

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

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Bioaccumulation : Remarks: Bioaccumulation is unlikely.

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

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Propan-2-ol:

Partition coefficient: n-octanol/water : log Pow: 0.05

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of contents and container according to wastes control act.

Do not dispose of waste into sewer.

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.

Disposal precautions

Dispose of contents and container according to wastes control act.

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
Environmentally hazardous	: no

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

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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	: no

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

Not applicable

15. REGULATORY INFORMATION

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Chemical name	CAS-No.
Isopropyl alcohol	67-63-0

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Chemical name	CAS-No.	Threshold limits (%)
Isopropyl alcohol	67-63-0	≥ 1 %

Special Management Materials

Not applicable

Controlled Substances Subject to Environment Monitoring

Chemical name	CAS-No.	Threshold limits (%)
Isopropyl alcohol	67-63-0	≥ 1 %

Controlled Substances Subject to Health Examination

Chemical name	CAS-No.	Threshold limits (%)
Isopropyl alcohol	67-63-0	≥ 1 %

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Hazardous Substances Subject to Process Safety Management (PSM) Reporting Obligation

Not applicable

K-OSHA Hazardous Substances (Occupational Safety and Health Regulations, Table 1)

Category
Flammable liquid

K-OSHA Hazardous Substances (Occupational Safety and Health Regulations, Table 9)

Category	Manufacturing or handling quantity
Flammable liquid	400 litre

Regulation under the Chemicals Control Act

Toxic Chemicals

Not applicable

Restricted Chemicals

Not applicable

Prohibited Chemicals

Not applicable

Toxic Release Inventory

Chemical name	CAS-No.	Group	Threshold limits (%)
Hydrofluorocarbons	138495-42-8	Group II	>= 1 %
2-Propanol	67-63-0	Group II	>= 1 %

Accident Precaution Chemicals

Not applicable

Dangerous Substances Safety Management Act

Not Applicable to Dangerous Materials

Wastes Control Act

Industrial general wastes

Follow article 13 of the act to dispose the product waste

Other requirements in domestic and other countries

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

16. OTHER INFORMATION

Other information : Vertrel™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.

SAFETY DATA SHEET



Vertrel™ XP specialty fluid

Version 8.1	Revision Date: 2025/03/05	SDS Number (Internal): 1324978-00049	Date of last issue: 2024/10/16 Date of first issue: 2017/02/27
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Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.

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, <http://echa.europa.eu/>

Issuing date : 2017/02/27

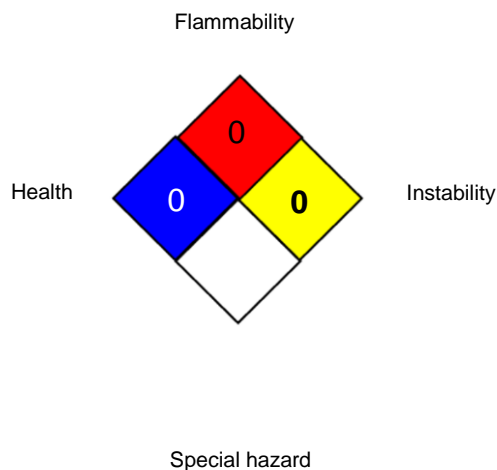
Revision number and date

Number of Revision : 48

Revision Date : 2025/03/05

Date format : yyyy/mm/dd

NFPA:



Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	: ACGIH - Biological Exposure Indices (BEI)
KR OEL	: Harmful Agents to be kept below Occupational Exposure Limits
WEEL	: Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit

SAFETY DATA SHEET



Vertrel™ XP specialty fluid

Version	Revision Date:	SDS Number (Internal):	Date of last issue: 2024/10/16
8.1	2025/03/05	1324978-00049	Date of first issue: 2017/02/27

KR OEL / TWA	: Time Weighted Average
KR OEL / STEL	: Short Term Exposure Limit
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

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.

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