SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Vertrel™ XMS Plus specialty fluid

Version	Revision Date:	SDS Number:	Date of last issue: 04/21/2023
8.6	12/05/2023	1327920-00044	Date of first issue: 02/27/2017

SECTION 1. IDENTIFICATION

Product name : Vertrel™ XMS Plus specialty fluid

SDS-Identcode : 130000000837

Manufacturer or supplier's details

Company name of supplier : The Chemours Company FC, LLC

Address : 1007 Market Street
Wilmington, DE 19801 United States of America (USA)

Telephone : 1-844-773-CHEM (outside the U.S. 1-302-773-1000)

Emergency telephone : Medical emergency: 1-866-595-1473 (outside the U.S. 1-302-773-2000) ; Transport emergency: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

Recommended use of the chemical and restrictions on use

Recommended use : Cleaning agent

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Eye irritation : Category 2B

Specific target organ toxicity - single exposure : Category 2 (Eye, Central nervous system)

Specific target organ toxicity - single exposure : Category 3

GHS label elements

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H320 Causes eye irritation.
H336 May cause drowsiness or dizziness.
H371 May cause damage to organs (Eye, Central nervous system).

Precautionary Statements :

Prevention:

P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.

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.
P308 + P311 IF exposed or concerned: Call a doctor.
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.
In use, may form flammable/explosive vapor-air mixture.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	>= 50 - < 70
Trans-Dichloroethylene	156-60-5	>= 30 - < 50
Methanol	67-56-1	>= 3 - < 5
Cyclopentane	287-92-3	>= 1 - < 5

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

If inhaled : If inhaled, remove to fresh air.

Get medical attention.

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. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	May cause cardiac arrhythmia. Skin contact may provoke the following symptoms: Dermatitis Discomfort Pain Redness Rash Itching Swelling of tissue Eye damage Eye contact may provoke the following symptoms Irritation Pain tearing Swelling of tissue Redness Impairment of vision Discomfort Inhalation may provoke the following symptoms: Eye damage Effects of breathing high concentrations of vapor may include: Tiredness Drowsiness central nervous system effects Convulsions Adverse effects from repeated inhalation may include central nervous system effects Ingestion may provoke the following symptoms: Lack of coordination narcosis Eye damage Aspiration may cause pulmonary edema and pneumonitis. Causes eye irritation. May cause drowsiness or dizziness. May cause damage to organs.

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.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Hydrogen fluoride carbonyl fluoride Carbon oxides Chlorine compounds
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 fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 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 diking or other appropriate contain-

ment to keep material from spreading. If diked 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.

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. If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.
Advice on safe handling	:	Do not get on skin or clothing. Do not breathe 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 Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product. 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 tem-	:	< 115 °F / < 46 °C

perature

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 (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 2,320 mg/m³	WEEL
		STEL	700 ppm 7,217 mg/m³	WEEL
Trans-Dichloroethylene	156-60-5	TWA	200 ppm	ACGIH
Methanol	67-56-1	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		ST	250 ppm 325 mg/m³	NIOSH REL
		TWA	200 ppm 260 mg/m³	NIOSH REL
		TWA	200 ppm 260 mg/m³	OSHA Z-1
Cyclopentane	287-92-3	TWA	1,000 ppm	ACGIH
		TWA	600 ppm 1,720 mg/m³	NIOSH REL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI

Engineering measures : Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where

concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

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
Odor Threshold	:	No data available
pH	:	No data available

Melting point/freezing point	:	< -58.0 °F / < -50.0 °C
Initial boiling point and boiling range	:	100 °F / 38 °C
Flash point	:	Method: ASTM D 93 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 15.0 %(V) Method: ASTM E681
Lower explosion limit / Lower flammability limit	:	Lower flammability limit 4.0 %(V) Method: ASTM E681
Vapor pressure	:	636.0 hPa (77 °F / 25 °C)
Relative vapor density	:	4.3
Density	:	1.34 g/cm³ (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	15 g/l
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	0.46 mPa.s (77 °F / 25 °C)
Viscosity, kinematic	:	No data available
Explosive properties	:	In use may form flammable/explosive vapor-air mixture.
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
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	:	Vapors may form flammable mixture with air In use may form flammable/explosive vapor-air mixture.
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.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: 75.01 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

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

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

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

Methanol:

Acute oral toxicity : Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment

Acute inhalation toxicity : Acute toxicity estimate: 3 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Expert judgment
Remarks: Based on national or regional regulation.

Acute dermal toxicity : Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment

Cyclopentane:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : LC50 (Rat): > 25.3 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Method: OECD Test Guideline 403

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

Methanol:

Species	:	Rabbit
Result	:	No skin irritation

Cyclopentane:

Species	:	Rabbit
Result	:	No skin irritation
Remarks	:	Based on data from similar materials

Assessment	:	Repeated exposure may cause skin dryness or cracking.

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

Trans-Dichloroethylene:

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

Methanol:

Species	:	Rabbit
Result	:	No eye irritation

Cyclopentane:

Species	:	Rabbit

Result	:	No eye irritation
Method	:	OECD Test Guideline 405
Remarks	:	Based on data from similar materials

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

Methanol:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	negative

Cyclopentane:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	negative
Remarks	:	Based on data from similar materials

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) 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 (vapor)

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.

Methanol:

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
Result: negative

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

Cyclopentane:

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

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

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 (vapor)
Result: negative
Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:

Methanol:

Species	:	Mouse
Application Route	:	inhalation (vapor)
Exposure time	:	18 Months
Result	:	negative

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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

Methanol:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Mouse
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Mouse
Application Route: Ingestion
Result: positive
Remarks: The effects were seen only at maternally toxic doses.

Cyclopentane:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Inhalation
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

STOT-single exposure

May cause drowsiness or dizziness.
May cause damage to organs (Eye, Central nervous system).

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.

Methanol:

Target Organs : Eye, Central nervous system
Assessment : Causes damage to organs.

Cyclopentane:

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
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

Methanol:

Species	:	Rat
NOAEL	:	1.06 mg/l
Application Route	:	inhalation (vapor)
Exposure time	:	90 Days

Cyclopentane:

Species	:	Rat
NOAEL	:	30 mg/l
Application Route	:	inhalation (vapor)
Exposure time	:	90 Days
Method	:	OECD Test Guideline 413

Aspiration toxicity

Not classified based on available information.

Components:

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

No aspiration toxicity classification

Cyclopentane:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

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 aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 10.6 mg/l 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 aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.72 mg/l 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 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

Methanol:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 22,000 mg/l Exposure time: 96 h Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOEC (Oryzias latipes (Orange-red killifish)): 15,800 mg/l Exposure time: 200 h
Toxicity to microorganisms	:	IC50: > 1,000 mg/l Exposure time: 3 h

Cyclopentane:

Toxicity to fish	:	LC50 (Oncorhynchus kisutch (coho salmon)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 10.5 mg/l Exposure time: 48 h

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

Methanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 20 d

Cyclopentane:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

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 (75 °F / 24 °C)

Trans-Dichloroethylene:

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

Methanol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): < 10

Partition coefficient: n-octanol/water : log Pow: -0.77

Cyclopentane:

Partition coefficient: n-octanol/water : log Pow: 3

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with local regulations. 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.

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

49 CFR

UN/ID/NA number	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (Trans-Dichloroethylene)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	no
Remarks	:	THE ABOVE INFORMATION ONLY APPLIES TO PACKAGE SIZES WHERE THE HAZARDOUS SUBSTANCE MEETS THE REPORTABLE QUANTITY.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Trans-Dichloroethylene	156-60-5	1000	2334
Methanol	67-56-1	5000	125012

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Methanol	67-56-1	>= 1 - < 5 %

US State Regulations

Pennsylvania Right To Know

1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8
Trans-Dichloroethylene	156-60-5
Methanol	67-56-1
Cyclopentane	287-92-3
1,2-Butylene oxide	106-88-7

California Prop. 65

WARNING: This product can expose you to chemicals including Nitromethane, which is/are known to the State of California to cause cancer, and
Methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

Trans-Dichloroethylene	156-60-5
Methanol	67-56-1
Cyclopentane	287-92-3

California Permissible Exposure Limits for Chemical Contaminants

Methanol	67-56-1
Cyclopentane	287-92-3

International Regulations

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

Additional regulatory information

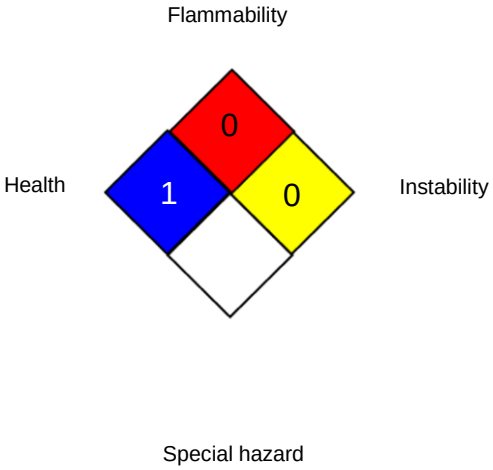
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8

The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for one of the components in this product.
See 40 CFR § 721.5645
This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D:

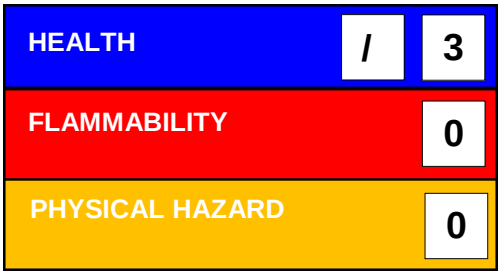
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

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)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
WEEL	:	Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / TWA	:	8-hour time weighted average
WEEL / STEL	:	Short term exposure limit

WEEL / TWA : 8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

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, http://echa.europa.eu/

Revision Date : 12/05/2023

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.

US / Z8