

SAFETY DATA SHEET



Vertrel™ SDG specialty fluid

Version 4.0 Revision Date: 06/27/2017 SDS Number: 1333485-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

SECTION 1. IDENTIFICATION

Product name : Vertrel™ SDG specialty fluid, Vertrel™ SDG specialty fluid
Product code : D14830242, D14830242

Manufacturer or supplier's details

Company name of supplier : The Chemours Company FC, LLC
Address : 1007 Market Street
Wilmington, DE 19899 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 29 CFR 1910.1200

Eye irritation : Category 2B

Specific target organ systemic 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.

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.
Response:

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

Storage:

P405 Store locked up.

Disposal:

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

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

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
trans-Dichloroethylene	156-60-5	>= 70 - < 90

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 if symptoms occur.

In case of skin contact : In case of contact, immediately flush skin with plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.

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	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.
Notes to physician	: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) 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	: Carbon oxides Chlorine compounds Hydrogen fluoride carbonyl fluoride

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	Fluorine 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 and personal protective equipment recommendations.
Environmental precautions	: Discharge into the environment must be avoided. 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 containment 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	: Use with local exhaust ventilation.
Advice on safe handling	: Do not get on skin or clothing. Do not breathe vapors or spray mist. Do not swallow. Do not get in eyes. Handle in accordance with good industrial hygiene and safety practice.

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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 labeled containers.
Store locked up.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
- Recommended storage temperature : < 52 °C
- Storage period : > 10 y
- Other data : The product has an indefinite shelf life when stored properly.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
trans-Dichloroethylene	156-60-5	TWA	200 ppm	ACGIH

- Engineering measures** : Minimize workplace exposure concentrations.
Use with local 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.

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Hand protection	:	
Material	:	Viton (R)
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	:	Skin should be washed after contact.
Hygiene measures	:	Ensure that eye flushing systems and safety showers are located 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	:	clear, colorless
Odor	:	slight, ether-like
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	< -50 °C
Initial boiling point and boiling range	:	43 °C
Flash point	:	Method: Pensky-Martens closed cup does not flash
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	Upper flammability limit 14 %(V) Method: ASTM E681

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Lower explosion limit / Lower flammability limit	:	Lower flammability limit 7 %(V) Method: ASTM E681
Vapor pressure	:	517 hPa (25 °C)
Relative vapor density	:	2.1
Density	:	1.29 g/cm ³ (25 °C)
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	0.59 mPa.s (25 °C)
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact

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|| Ingestion
|| Eye contact

Acute toxicity

|| Not classified based on available information.

Ingredients:

|| trans-Dichloroethylene:

|| Acute oral toxicity : LD50 (Rat): 7,902 mg/kg

|| Acute inhalation toxicity : LC50 (Rat): 95.4 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403

Lowest observed adverse effect concentration (Dog): 250000 ppm

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

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

Skin corrosion/irritation

|| Not classified based on available information.

Ingredients:

|| trans-Dichloroethylene:

|| Species: Rabbit
|| Result: Mild skin irritation

Serious eye damage/eye irritation

|| Causes eye irritation.

Ingredients:

|| trans-Dichloroethylene:

|| Species: Rabbit
|| Result: Irritation to eyes, reversing within 7 days

Respiratory or skin sensitization

Skin sensitization

|| Not classified based on available information.

Respiratory sensitization

|| Not classified based on available information.

Germ cell mutagenicity

|| Not classified based on available information.

Ingredients:

|| trans-Dichloroethylene:

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

Carcinogenicity

Not classified based on available information.

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.

STOT-single exposure

May cause drowsiness or dizziness.

Ingredients:

trans-Dichloroethylene:

Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure

Not classified based on available information.

Ingredients:

trans-Dichloroethylene:

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

Repeated dose toxicity

Ingredients:

trans-Dichloroethylene:

Species: Rat
NOAEL: 4000 ppm
LOAEL: > 4000 ppm
Application Route: inhalation (gas)
Exposure time: 90 d
Method: OECD Test Guideline 413
Remarks: No significant adverse effects were reported

Species: Rat
NOAEL: 3,000 mg/kg
LOAEL: > 3,000 mg/kg
Application Route: Ingestion
Exposure time: 90 d

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Remarks: No significant adverse effects were reported

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

trans-Dichloroethylene:

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

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 220 mg/l
aquatic invertebrates Exposure time: 48 h

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 36.36
mg/l
Exposure time: 72 h

Persistence and degradability

Ingredients:

trans-Dichloroethylene:

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

Bioaccumulative potential

Ingredients:

trans-Dichloroethylene:

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

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.

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.

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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.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
trans-Dichloroethylene	156-60-5	1000	1206
1,2-Butylene oxide	106-88-7	100	120481

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 : Acute Health Hazard

|| SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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US State Regulations

Pennsylvania Right To Know

trans-Dichloroethylene	156-60-5
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8
1,1,2,2,3,3,4-Heptafluorocyclopentane	15290-77-4
1,2-Butylene oxide	106-88-7

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

California List of Hazardous Substances

trans-Dichloroethylene	156-60-5
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Additional regulatory information

1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8
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The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for one of the components in this product.
This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D:

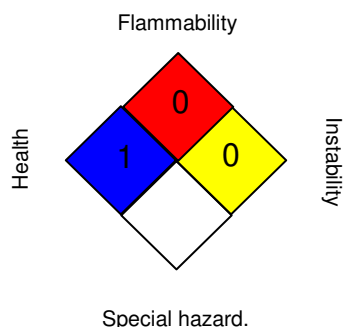
1,1,2,2,3,3,4-Heptafluorocyclopentane	15290-77-4
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The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for one of the components in this product.
See 40 CFR § 721.10434

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:

HEALTH	/	1
FLAMMABILITY		0
PHYSICAL HAZARD		0

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.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average

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AICS - Australian Inventory of Chemical Substances; 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; 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

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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.

All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

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 : 06/27/2017

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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

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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