SAFETY DATA SHEET
Vertrel™ SDG specialty fluid

SECTION 1. IDENTIFICATION

Product name : Vertrel™ SDG specialty fluid
SDS-Identcode : 130000033958

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)

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:
Vertrel™ SDG specialty fluid

SECTION 2. HAZARDS IDENTIFICATION

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
In use, may form flammable/explosive vapor-air mixture.
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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>trans-Dichloroethylene</td>
<td>156-60-5</td>
<td>&gt;= 70 - &lt; 90</td>
</tr>
</tbody>
</table>

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 if symptoms occur.

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

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.
If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: May cause cardiac arrhythmia. Skin contact may provoke the following symptoms: Dermatitis, Irritation, Pain, 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 (CO2), Dry chemical.

Unsuitable extinguishing media: None known.

Specific hazards during firefighting: Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides, Chlorine compounds.
SAFETY DATA SHEET
Vertrel™ SDG specialty fluid

Version: 9.1  Revision Date: 04/08/2019  SDS Number: 1333485-00037  Date of last issue: 10/05/2018
Date of first issue: 02/27/2017

Hydrogen fluoride
Carbonyl fluoride
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.
Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential.

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, based on the results of the workplace exposure assessment.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
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:

- < 115 °F / < 46 °C

Storage period:

- > 10 y

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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>trans-Dichloroethylene</td>
<td>156-60-5</td>
<td>TWA</td>
<td>200 ppm</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Engineering measures:
Minimize workplace exposure concentrations.
Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential.
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.

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: Wear the following personal protective equipment: Flame retardant antistatic protective clothing, unless assessment demonstrates that the risk of explosive atmospheres or flash fires is low.

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: < -58 °F / < -50 °C
- Initial boiling point and boiling: 109 °F / 43 °C
SAFETY DATA SHEET
Vertrel™ SDG specialty fluid

Version: 9.1  Revision Date: 04/08/2019  SDS Number: 1333485-00037  Date of last issue: 10/05/2018
Date of first issue: 02/27/2017

range

Flash point : Method: Pensky-Martens closed cup
do 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

Lower explosion limit / Lower flammability limit : Lower flammability limit
7 % (V)
Method: ASTM E681

Vapor pressure : 517 hPa (77 °F / 25 °C)
Relative vapor density : 2.1
Density : 1.29 g/cm³ (77 °F / 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 (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.

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.
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:

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.

Components:

trans-Dichloroethylene:

Species:  Rabbit
Result:  Mild skin irritation

Serious eye damage/eye irritation
Causes eye irritation.

Components:

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.

Components:

trans-Dichloroethylene:

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.

Components:

trans-Dichloroethylene:

Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure
Not classified based on available information.

Components:

trans-Dichloroethylene:

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

Repeated dose toxicity

Components:

trans-Dichloroethylene:

Species: Rat
SAFETY DATA SHEET

Vertrel™ SDG specialty fluid

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
Remarks : No significant adverse effects were reported

Aspiration toxicity
Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

trans-Dichloroethylene:
Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 135 mg/l
Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 220 mg/l
Exposure time: 48 h
Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 36.36 mg/l
Exposure time: 72 h

Persistence and degradability

Components:

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

Bioaccumulative potential

Components:

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

Mobility in soil
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.

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

EPCRA - Emergency Planning and Community Right-to-Know
CERCLA Reportable Quantity
SAFETY DATA SHEET

Vertrel™ SDG specialty fluid

Version 9.1
Revision Date: 04/08/2019
SDS Number: 1333485-00037
Date of last issue: 10/05/2018
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Components
<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>trans-Dichloroethylene</td>
<td>156-60-5</td>
<td>1000</td>
</tr>
</tbody>
</table>

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:
- Serious eye damage or eye irritation
- Specific target organ toxicity (single or repeated exposure)

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.

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

California List of Hazardous Substances
- trans-Dichloroethylene 156-60-5

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:
- 1,1,2,2,3,3,4-Heptafluorocyclopentane 15290-77-4

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
SAFETY DATA SHEET
Vertrel™ SDG specialty fluid

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:  

HMIS® IV:

HEALTH / 1
FLAMMABILITY 0
PHYSICAL HAZARD 0

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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.

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average

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...
Sources of key data used to compile the Material Safety Data Sheet:


Revision Date: 04/08/2019

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.