



SAFETY DATA SHEET

Vertrel™ SDG SPECIALTY FLUID, BULK

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name Vertrel™ SDG SPECIALTY FLUID, BULK

Product number MCC-SDGL, MCC-SDGG, MCC-SDGGL, MCC-SDG0GG

Synonyms; trade names M2S-SDGL, M2S-SDGG, M2S-SDGGL, M2S-SDG0GG

Recommended use of the chemical and restrictions on use

Application Cleaning agent.

Details of the supplier of the safety data sheet

Supplier MICROCARE CORPORATION

Manufacturer MICROCARE CORPORATION
595 John Downey Drive
New Britain, CT 06051
United States of America
CAGE: OATV9
Tel: + 1 800 638 0125, +1 860-827-0626
Fax: +1 860-827-8105
techsupport@microcare.com

Emergency telephone number

Emergency telephone CHEMTREC 1-800-424-9300 (within the U.S.)
+1 703-741-5970 (from anywhere in the world)

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status This Product is Hazardous under the OSHA Hazard Communication Standard.

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H332

Human health Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. Mild dermatitis, allergic skin rash.

Environmental The product contains a substance which is harmful to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Physicochemical Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. Gas or vapor displaces oxygen available for breathing (asphyxiant).

Label elements

Vertrel™ SDG SPECIALTY FLUID, BULK**Pictogram****Signal word**

Warning

Hazard statements

H332 Harmful if inhaled.

Precautionary statements

P261 Avoid breathing vapor/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P312 Call a poison center/ doctor if you feel unwell.
 P501 Dispose of contents/ container in accordance with local regulations.

Supplemental label information

Safety data sheet available on request. For use in industrial installations only.

Contains

trans-DICHLOROETHYLENE

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients**Mixtures**

| | |
|---|----------------|
| trans-DICHLOROETHYLENE | 60-100% |
| CAS number: 156-60-5 | |
| Classification | |
| Flam. Liq. 2 - H225 Acute Tox. 4 - H332 Not relevant. | |
| HEPTAFLUOROCYCLOPENTANE | 10-30% |
| CAS number: 15290-77-4 | |
| Classification | |
| Not relevant. | |
| 1,1,1,2,2,3,4,5,5,5-decafluoropentane | 10-30% |
| CAS number: 138495-42-8 | |
| Classification | |
| Not relevant. | |

The full text for all hazard statements is displayed in Section 16.

Composition comments

The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of CFR 1900.1200 TSCA: The ingredients of this product are on the TSCA Inventory.

Composition

Vertrel™ SDG SPECIALTY FLUID, BULK

4. First-aid measures

Description of first aid measures

| | |
|----------------------------|--|
| General information | Never give anything by mouth to an unconscious person. Do not induce vomiting. Place unconscious person on the side in the recovery position and ensure breathing can take place. If breathing stops, provide artificial respiration. Consult a physician for specific advice. |
| Inhalation | Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention. |
| Ingestion | Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention. |
| Skin Contact | Wash skin thoroughly with soap and water. Remove contaminated clothing and rinse skin thoroughly with water. Get medical attention if irritation persists after washing. |
| Eye contact | Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention. |

Most important symptoms and effects, both acute and delayed

| | |
|----------------------------|---|
| General information | The severity of the symptoms described will vary dependent on the concentration and the length of exposure. Extensive use of the product in areas with inadequate ventilation may result in the accumulation of hazardous vapor concentrations. May cause discomfort. Symptoms following overexposure may include the following: Headache. Dizziness. Nausea, vomiting. |
| Inhalation | May cause an asthma-like shortness of breath. Vapors may cause headache, fatigue, dizziness and nausea. Arrhythmia (deviation from normal heart beat). |
| Ingestion | Pulmonary edema, frothy sputum. |
| Skin contact | Skin irritation. Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. |
| Eye contact | May cause temporary eye irritation. Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain. |

Indication of immediate medical attention and special treatment needed

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| Notes for the doctor | No specific recommendations. If in doubt, get medical attention promptly. |
|-----------------------------|---|

5. Fire-fighting measures

Extinguishing media

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| Suitable extinguishing media | The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire. |
| Unsuitable extinguishing media | Water spray. Never use water by itself on spillage; this will spread the spill and cause further contamination. |

Special hazards arising from the substance or mixture

| | |
|--------------------------------------|---|
| Flammability Class | The product is not flammable. TCC (Tag closed cup). TOC (Tag open cup). |
| Specific hazards | Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Closed containers can burst violently when heated, due to excess pressure build-up. |
| Hazardous combustion products | Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Fire creates: Carbonyl compounds. Chlorides. |

Advice for firefighters

Vertrel™ SDG SPECIALTY FLUID, BULK

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| Protective actions during firefighting | Containers close to fire should be removed or cooled with water. |
| Special protective equipment for firefighters | Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. |

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Warn everybody of potential hazards and evacuate if necessary. Provide adequate ventilation. Avoid inhalation of vapors. Use approved respirator if air contamination is above an acceptable level. No smoking, sparks, flames or other sources of ignition near spillage. Follow precautions for safe handling described in this safety data sheet. For personal protection, see Section 8.

Environmental precautions

Environmental precautions Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.

Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with non-combustible, absorbent material. Do not discharge into drains or watercourses or onto the ground. Contain and absorb spillage with sand, earth or other non-combustible material. Collect spillage with a shovel and broom, or similar and reuse, if possible. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. It is recommended that gloves are made of the following material: Neoprene.

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place.

Storage class Unspecified storage. The product is not flammable.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

Reference to other sections. Store away from incompatible materials (see Section 10).

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

trans-DICHLOROETHYLENE

Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 793 mg/m³

1,1,1,2,2,3,4,5,5,5-decafluoropentane

No information available that would effect occupational exposure limit values.

ACGIH = American Conference of Governmental Industrial Hygienists.

Additional Occupational Exposure Limits

Vertrel™ SDG SPECIALTY FLUID, BULK

Exposure controls

Protective equipment



Appropriate engineering controls

No specific ventilation requirements. This product must not be handled in a confined space without adequate ventilation.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses. Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles or face shield.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. It is recommended that gloves are made of the following material: Nitrile rubber. Polyvinyl alcohol (PVA). Viton rubber (fluoro rubber).

Other skin and body protection

Wear suitable protective clothing as protection against splashing or contamination. Wear apron or protective clothing in case of contact.

Hygiene measures

Avoid inhalation of spray mist and contact with skin and eyes. When using do not eat, drink or smoke. Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection

Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. In confined or poorly-ventilated spaces, a supplied-air respirator must be worn. Wear self-contained breathing apparatus with full facepiece.

Thermal hazards

Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

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| Appearance | Clear liquid. |
| Color | Colorless. |
| Odor | Slight. Ether. |
| Odor threshold | No information available. |
| pH | No information available. |
| Melting point | No information available. |
| Initial boiling point and range | 43°C/109°F @ 101.3 kPa |
| Flash point | Does not flash Penskey-Martins Closed Cup (ASTM D 93) |
| Evaporation rate | No information available. |
| Evaporation factor | No information available. |
| Flammability (solid, gas) | No information available. |
| Upper/lower flammability or explosive limits | Lower flammable/explosive limit: 7.0 %(V) Upper flammable/explosive limit: 14 %(V) |
| Other flammability | The product is not flammable. |

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| Vapor pressure | 51.7 kPa @ 25°C |
| Vapor density | Not applicable. |
| Relative density | No information available. 1.29 g/cm ³ @ 25°C/77°F |
| Bulk density | Not applicable. |
| Solubility(ies) | No information available. |
| Partition coefficient | No information available. |
| Auto-ignition temperature | No information available. |
| Decomposition Temperature | No information available. |
| Viscosity | 0.59 mPa s @ 25°C/77°F |
| Explosive properties | No information available. |
| Refractive index | No information available. |
| Particle size | No information available. |
| Molecular weight | Not applicable. |
| Volatility | 100% |
| Saturation concentration | No information available. |
| Critical temperature | No information available. |
| Volatile organic compound | This product contains a maximum VOC content of 1150 g/litre. |
| Flammability | The product is not flammable. |

10. Stability and reactivity

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|---|--|
| Stability | Stable at normal ambient temperatures and when used as recommended. |
| Possibility of hazardous reactions | Will not polymerize. |
| Conditions to avoid | Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. |
| Materials to avoid | Alkali metals. Alkaline earth metals. Powdered metal. |
| Hazardous decomposition products | Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO ₂). Carbon monoxide (CO). |

11. Toxicological information

Information on toxicological effects

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 14.29

Inhalation Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.

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| | |
|-------------------------|--|
| Ingestion | May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication. |
| Skin Contact | Product has a defatting effect on skin. May cause allergic contact eczema. |
| Eye contact | May cause temporary eye irritation. |
| Medical Symptoms | Gas or vapor in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting. |

Toxicological information on ingredients.

trans-DICHLOROETHYLENE

Other health effects There is no evidence that the product can cause cancer.

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 11.0

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

ATE oral (mg/kg) 5,000.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 5,000.0

Species Rat

ATE dermal (mg/kg) 5,000.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 114.0

Species Rat

ATE inhalation (vapours mg/l) 114.0

Skin corrosion/irritation

Animal data Not irritating. Rabbit

Human skin model test Data lacking.

Extreme pH Not applicable. Not corrosive to skin.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating. Rabbit

Respiratory sensitization

Respiratory sensitization Data lacking.

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Skin sensitization

Skin sensitization Not sensitizing. - Guinea pig: Not sensitizing.

Germ cell mutagenicity

Genotoxicity - in vitro This substance has no evidence of mutagenic properties.

Genotoxicity - in vivo This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity Does not contain any substances known to be carcinogenic.

IARC carcinogenicity Not listed.

NTP carcinogenicity Not listed.

OSHA Carcinogenicity Not listed.

Reproductive toxicity

Reproductive toxicity - fertility No evidence of reproductive toxicity in animal studies.

Skin Contact Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.

Eye contact May cause eye irritation.

Acute and chronic health hazards There is no evidence that the product can cause cancer.

12. Ecological Information

Ecotoxicity The product contains a substance which is toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Ecotoxicity Low acute toxicity to aquatic organisms.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Ecotoxicity It is unlikely that the substance will dissolve in water in amounts big enough to have a toxic effect on fish and daphnies.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Acute toxicity - fish LC₅₀, 96 hours: 1350 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 220 mg/l, Daphnia magna

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Acute toxicity - fish LC₅₀, 96 hours: 13.9 mg/l, Onchorhynchus mykiss (Rainbow trout)

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Acute toxicity - aquatic invertebrates LC₅₀, 48 hours: 11.7 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: >120 mg/l, Algae

Persistence and degradability

Persistence and degradability No data available.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient No information available.

Ecological information on ingredients.**trans-DICHLOROETHYLENE**

Bio-Accumulative Potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Bio-Accumulative Potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

Partition coefficient Pow: 2.7

Mobility in soil

Mobility No data available.

Ecological information on ingredients.**trans-DICHLOROETHYLENE**

Mobility The product has poor water-solubility.

Other adverse effects

Other adverse effects The product contains a substance or substances that will contribute to global warming (greenhouse effect).

13. Disposal considerations**Waste treatment methods**

General information Refer to manufacturer/supplier for information on recovery/recycling. Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Reuse or recycle products wherever possible.

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

Not applicable.

Vertrel™ SDG SPECIALTY FLUID, BULK

UN proper shipping name

Not applicable.

Transport hazard class(es)

Transport labels

No transport warning sign required.

DOT transport labels

No transport warning sign required.

Packing group

Not applicable.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Not applicable.

DOT TIH Zone

Not applicable.

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

Not applicable.

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Not listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

trans-DICHLOROETHYLENE

Final CERCLA RQ: 1000(454) pounds (Kilograms)

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Not listed.

SARA 313 Emission Reporting

Not listed.

CAA Accidental Release Prevention

Not listed.

SARA (311/312) Hazard Categories

None

OSHA Highly Hazardous Chemicals

Not listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Not listed.

Vertrel™ SDG SPECIALTY FLUID, BULK

California Air Toxics "Hot Spots" (A-I)

Not listed.

California Air Toxics "Hot Spots" (A-II)

Not listed.

California Directors List of Hazardous Substances

trans-DICHLOROETHYLENE

Present.

Massachusetts "Right To Know" List

trans-DICHLOROETHYLENE

Present.

Rhode Island "Right To Know" List

Not listed.

Minnesota "Right To Know" List

Not listed.

New Jersey "Right To Know" List

Not listed.

Pennsylvania "Right To Know" List

trans-DICHLOROETHYLENE

Present.

Inventories

Canada - DSL/NDSL

trans-DICHLOROETHYLENE

DSL

HEPTAFLUOROCYCLOPENTANE

NDSL

1,1,1,2,2,3,4,5,5,5-decafluoropentane

DSL

US - TSCA

Present.

trans-DICHLOROETHYLENE

Present.

HEPTAFLUOROCYCLOPENTANE

Present.

Vertrel™ SDG SPECIALTY FLUID, BULK

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Present.

1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule

(SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal and film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

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. This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D:

16. Other information

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|----------------------------------|--|
| Revision comments | NOTE: Lines within the margin indicate significant changes from the previous revision. |
| Revision date | 2/9/2018 |
| Revision | 21 |
| Supersedes date | 6/16/2017 |
| SDS No. | BULK - SDG |
| SDS status | Approved. |
| Hazard statements in full | H225 Highly flammable liquid and vapor. H332 Harmful if inhaled. |

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.