SAFETY DATA SHEET
Vertrel™ SDG SPECIALTY FLUID, BULK

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. 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

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Cleaning agent.

1.3. Details of the supplier of the safety data sheet

Supplier
MICROCare EUROPE BVBA
VEKESTRAAT 29 B11
INDUSTRIEZONE T SAS
1910 KAMPENHOUT, Belgium
Phone +32.2.251.95.05
Fax +32.2.400.96.39

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

1.4. Emergency telephone number

Emergency telephone
CHEMTREC UK (London) +(44)-870-8200418  +1 703-741-5970 (from anywhere in the world)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards
Not Classified

Health hazards
Acute Tox. 4 - H332

Environmental hazards
Aquatic Chronic 3 - H412

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
Vapours are heavier than air and may travel along the floor and accumulate in the bottom of containers. Gas or vapour displaces oxygen available for breathing (asphyxiant).
Vertrel™ SDG SPECIALTY FLUID, BULK

2.2. Label elements

Pictogram

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Hazard statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning</td>
<td>H332 Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td>H412 Harmful to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

Precautionary statements

<table>
<thead>
<tr>
<th>Precautionary statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>P261 Avoid breathing vapour/ spray.</td>
</tr>
<tr>
<td>P264 Wash skin thoroughly after handling.</td>
</tr>
<tr>
<td>P271 Use only outdoors or in a well-ventilated area.</td>
</tr>
<tr>
<td>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</td>
</tr>
<tr>
<td>P312 Call a POISON CENTRE/doctor if you feel unwell.</td>
</tr>
<tr>
<td>P501 Dispose of contents/ container in accordance with national regulations.</td>
</tr>
</tbody>
</table>

Supplemental label information

<table>
<thead>
<tr>
<th>Contains</th>
</tr>
</thead>
<tbody>
<tr>
<td>trans-1,2-DICHLOROETHYLENE</td>
</tr>
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</table>

Supplementary precautionary statements

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>P273 Avoid release to the environment.</td>
</tr>
<tr>
<td>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</td>
</tr>
</tbody>
</table>

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients

3.2. Mixtures

<table>
<thead>
<tr>
<th>trans-1,2-DICHLOROETHYLENE</th>
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<tbody>
<tr>
<td>CAS number: 156-60-5</td>
</tr>
<tr>
<td>EC number: 205-860-2</td>
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<tr>
<td>REACH registration number: 01-2120093504-55-0003</td>
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</table>

<table>
<thead>
<tr>
<th>Classification</th>
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</thead>
<tbody>
<tr>
<td>Flam. Liq. 2 - H225</td>
</tr>
<tr>
<td>Acute Tox. 4 - H332</td>
</tr>
<tr>
<td>Aquatic Chronic 3 - H412</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEPTAFLUOROCYCLOPENTANE</th>
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</thead>
<tbody>
<tr>
<td>CAS number: 15290-77-4</td>
</tr>
<tr>
<td>EC number: 430-710-1</td>
</tr>
<tr>
<td>REACH registration number: 02-2120746221-65-0000</td>
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</table>

<table>
<thead>
<tr>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Chronic 3 - H412</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1,1,1,2,2,3,4,5,5-decafluoropentane</th>
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</thead>
<tbody>
<tr>
<td>CAS number: 138495-42-8</td>
</tr>
<tr>
<td>EC number: 420-640-8</td>
</tr>
<tr>
<td>REACH registration number: 01-2119446695-28-0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification</th>
</tr>
</thead>
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</tr>
</tbody>
</table>

2/11
Vertrel™ SDG SPECIALTY FLUID, BULK

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

Composition comments  The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. 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.

4.2. 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 vapour concentrations. May cause discomfort. Symptoms following overexposure may include the following: Headache. Dizziness. Nausea, vomiting.

Inhalation  May cause an asthma-like shortness of breath. Vapours may cause headache, fatigue, dizziness and nausea. Arrhythmia (deviation from normal heart beat).

Ingestion  Pulmonary oedema, 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.

4.3. Indication of any immediate medical attention and special treatment needed

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

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.

5.2. Special hazards arising from the substance or mixture

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 vapours. Closed containers can burst violently when heated, due to excess pressure build-up.
Vertrel™ SDG SPECIALTY FLUID, BULK

Hazardous combustion products

Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Fire creates: Carbonyl compounds. Chlorides.

5.3. Advice for firefighters

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions

Warn everybody of potential hazards and evacuate if necessary. Provide adequate ventilation. Avoid inhalation of vapours. 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.

6.2. Environmental precautions

Environmental precautions

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

6.3. 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.

6.4. Reference to other sections

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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions

Provide adequate ventilation. Avoid inhalation of vapours/spray and contact with skin and eyes.

7.2. 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.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

Reference to other sections

Store away from incompatible materials (see Section 10).

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

trans-1,2-DICHLOROETHYLENE
Vertrel™ SDG SPECIALTY FLUID, BULK

Long-term exposure limit (8-hour TWA): ACGIH
Short-term exposure limit (15-minute): ACGIH 200 ppm

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

8.2. 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
Vapours 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 vapours.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance
Clear liquid.

Colour
Colourless.

Odour
Slight. Ether.

Odour 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)
Vertrel™ SDG SPECIALTY FLUID, BULK

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.

Vapour pressure  
51.7 kPa @ 25°C

Vapour density  
Not applicable.

Relative density  
No information available. 1.29 g/cm3 @ 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.

9.2. Other information

Refractive index  
No information available.

Particle size  
No information available.

Molecular weight  
Not applicable.

Volutility  
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.

UDF Phrase 1  
The product is not flammable.

SECTION 10: Stability and reactivity

10.1. Reactivity

10.2. Chemical stability

Stability  
Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions  
Will not polymerise.

10.4. Conditions to avoid

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 vapours.

10.5. Incompatible materials

Materials to avoid  
Alkali metals. Alkaline earth metals. Powdered metal.
Vertrel™ SDG SPECIALTY FLUID, BULK

10.6. Hazardous decomposition products

Hazardous decomposition products

Heating may generate the following products: Toxic and corrosive gases or vapours. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO2). Carbon monoxide (CO).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 14.29

Inhalation

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

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 vapour in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting.

Toxicological information on ingredients.

trans-1,2-DICHLOROETHYLENE

Other health effects

There is no evidence that the product can cause cancer.

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
Vertrel™ SDG SPECIALTY FLUID, BULK

Human skin model test
Data lacking.

Extreme pH
Not applicable. Not corrosive to skin.

Serious eye damage/irritation
Not irritating. Rabbit

Respiratory sensitisation
Data lacking.

Skin sensitisation
Not sensitising. - Guinea pig: Not sensitising.

Germ cell mutagenicity
This substance has no evidence of mutagenic properties.

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

Carcinogenicity
Does not contain any substances known to be carcinogenic.

IARC carcinogenicity
Not listed.

Reproductive toxicity
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.

SECTION 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-1,2-DICHLOROETHYLENE

Ecotoxicity
Low acute toxicity to aquatic organisms.

1,1,2,2,3,4,5,5-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.

12.1. Toxicity

Ecological information on ingredients.

trans-1,2-DICHLOROETHYLENE

Acute aquatic toxicity
Vertrel™ SDG SPECIALTY FLUID, BULK

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 aquatic toxicity

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

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

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

12.2. Persistence and degradability

Persistence and degradability  No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential  No data available on bioaccumulation.

Partition coefficient  No information available.

Ecological information on ingredients.

trans-1,2-DICHLOROETHYLENE

Bioaccumulative 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

Bioaccumulative potential  Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

Partition coefficient  Pow: 2.7

12.4. Mobility in soil

Mobility  No data available.

Ecological information on ingredients.

trans-1,2-DICHLOROETHYLENE

Mobility  The product has poor water-solubility.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment  This product does not contain any substances classified as PBT or vPvB. No data available.

12.6. Other adverse effects

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

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Vertrel™ SDG SPECIALTY FLUID, BULK

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.

SECTION 14: Transport information

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

14.1. UN number
Not applicable.

14.2. UN proper shipping name
Not applicable.

14.3. Transport hazard class(es)

Transport labels
No transport warning sign required.

14.4. Packing group
Not applicable.

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user
Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

15.2. Chemical safety assessment
No chemical safety assessment has been carried out.

Inventories

US - TSCA 12(b) Export Notification

HEPTAFLUOROCYCLOPENTANE
Present.
1,1,1,2,2,3,4,5,5,5-decafluoropentane
Present.
Vertrel™ SDG SPECIALTY FLUID, BULK

SECTION 16: Other information

Revision comments
NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date
07/06/2018

Revision
23

Supersedes date
07/06/2018

SDS number
BULK - SDG

SDS status
Approved.

Hazard statements in full
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

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.