SAFETY DATA SHEET
Opteon™ SF79 specialty fluid

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

1.1. Product identifier

Product name              Opteon™ SF79 specialty fluid
Synonyms; trade names     Opteon™ Sion specialty fluid    M2S-SIONGL, M2S-SIONGG, M2S-SIONG, M2S-SIONL, M2S-SIONP, M2S-SIOND

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

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               Irritating to eyes.
Physicochemical            Vapours are heavier than air and may travel along the floor and accumulate in the bottom of containers.

2.2. Label elements
Opteon™ SF79 specialty fluid

Pictogram

Signal word
Warning

Hazard statements
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P261 Avoid breathing vapour/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTRE/doctor if you feel unwell.
P501 Dispose of contents/container in accordance with national regulations.

Supplemental label information
EUH210 Safety data sheet available on request.
RCH001a For use in industrial installations only.

Contains
trans-1,2-DICHLOROETHYLENE

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

trans-1,2-DICHLOROETHYLENE 60-100%

| CAS number: 156-60-5 | EC number: 205-860-2 | REACH registration number: 01-2120093504-55-0003 |

Classification
Flam. Liq. 2 - H225
Acute Tox. 4 - H332
Aquatic Chronic 3 - H412

MicroCare HFX110 Carrier Fluid 10-30%

| CAS number: — | REACH registration number: 02-2120746230-66-0000 |

Classification
Aquatic Chronic 3 - H412

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.
**Opteon™ SF79 specialty fluid**

**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**
Never give anything by mouth to an unconscious person. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Place unconscious person on their side in the recovery position and ensure breathing can take place. Get medical attention immediately.

**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.

**Inhalation**
Vapours in high concentrations are anaesthetic. Symptoms following overexposure may include the following: Headache. Fatigue. Dizziness. Central nervous system depression.

**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.

### 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.

**Hazardous combustion products**

#### 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
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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.

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.

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. Keep out of the reach of children.

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
Long-term exposure limit (8-hour TWA): ACGIH
Short-term exposure limit (15-minute): ACGIH 200 ppm
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.
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**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 skin thoroughly after handling.

**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.
- **Odour threshold**: No information available.
- **pH**: Neutral
- **Melting point**: No information available.
- **Initial boiling point and range**: 47°C/117°F @ unspecified
- **Flash point**: The product is not flammable. Tag Closed Cup (ASTM D 56) Does not flash
- **Evaporation rate**: 8 (butyl acetate = 1)
- **Evaporation factor**: No information available.
- **Flammability (solid, gas)**: Not applicable.
- **Upper/lower flammability or explosive limits**: Not applicable. Upper flammable/explosive limit: 15.25 %%(V) Lower flammable/explosive limit: 7.25 %%(V)
- **Other flammability**: The product is not flammable.
- **Vapour pressure**: 44.7 kPa @ unspecified°C
- **Vapour density**: 1.81
- **Relative density**: 1.29 @ 25°C/77°F
- **Bulk density**: Not applicable.
- **Solubility(ies)**: No information available.
- **Partition coefficient**: No information available.
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- **Auto-ignition temperature**: No information available.
- **Decomposition Temperature**: No information available.
- **Viscosity**: 0.42 mPa s @ unspecified°C Kinematic viscosity ≤ 20.5 mm²/s.
- **Explosive properties**: No information available.
- **Oxidising properties**: There are no chemical groups present in the product that are associated with oxidising properties.

### 9.2. Other information

- **Refractive index**: No information available.
- **Particle size**: Not applicable.
- **Molecular weight**: Not applicable.
- **Volatility**: 100%
- **Saturation concentration**: No information available.
- **Critical temperature**: No information available.
- **Volatile organic compound**: No information available.
- **UDF Phrase 1**: The product is not flammable.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

- **Reactivity**: Not classified as a reactivity hazard.

#### 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**: Vapors may form flammable mixture with air. In use may form flammable/explosive vapor-air mixture.

#### 10.4. Conditions to avoid

- **Conditions to avoid**: None known.

#### 10.5. Incompatible materials

- **Materials to avoid**: None known.

#### 10.6. Hazardous decomposition products

- **Hazardous decomposition products**: No known hazardous decomposition products.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

- **Acute toxicity - inhalation**
  - **ATE Inhalation (vapours mg/l)**: 12.22

- **Inhalation**: Vapours 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 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.

**MicroCare HFX110 Carrier Fluid**

**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 sensitisation**

Data lacking.

**Skin sensitisation**

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

**Germ cell mutagenicity**
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Genotoxicity - in vitro
This substance has no evidence of mutagenic properties.

Genotoxicity - in vivo
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

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

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

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Acute aquatic toxicity
LC₅₀, 96 hours: >0.096 mg/l, Oryzias latipes (Red killifish)

Acute aquatic toxicity - aquatic invertebrates
LC₅₀, 48 hours: >0.157 mg/l, Daphnia magna

Acute aquatic toxicity - aquatic plants
EC₅₀, 72 hours: >0.000477 mg/l, Pseudokirchneriella subcapitata

12.2. Persistence and degradability

Persistence and degradability
There are no data on the degradability of this product.

Ecological information on ingredients.
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**Biodegradation**
Inherently biodegradable.

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.

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Bioaccumulative potential
BCF: 1990, Cyprinus carpio (Common carp)

Partition coefficient
Pow: 4.9

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

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

14.1. UN number

14.2. UN proper shipping name

No information required.

14.3. Transport hazard class(es)
Opteon™ SF79 specialty fluid

No information required.

Transport labels
No transport warning sign required.

14.4. Packing group
No information required.

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
MicroCare HFX110 Carrier Fluid
Present.

SECTION 16: Other information

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

Revision date
10/05/2018

Revision
19

Supersedes date
30/04/2018

SDS number
BULK - SF79

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.