SAFETY DATA SHEET
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

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

1.1. Product identifier
Product name: OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID
Product number: MCC-OTX03M
Synonyms; trade names: Also sold in kit form as #MCC-OTXCK

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Cleaning agent.
Uses advised against: No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet
Supplier: MICROCARE EUROPE BVBA
VEKESTRAAT 29 B11
INDUSTRIEZONE ‘T SAS
1910 KAMPENHOUT, Belgium
+32.2.251.95.05
techsupport@microcare.com

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: Not Classified
Environmental hazards: Not Classified

2.2. Label elements
Hazard statements: NC Not Classified
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Precautionary statements
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P314 Get medical advice/ attention 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.

Supplementary precautionary statements
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.

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>Methyl Nonafluorobutyl Ether</th>
<th>30-60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 163702-07-6</td>
<td></td>
</tr>
<tr>
<td>EC number: 422-270-2</td>
<td></td>
</tr>
<tr>
<td>REACH registration number: 01-0000016878-53-0001</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Not Classified

<table>
<thead>
<tr>
<th>Methyl Nonafluoroisobutyl Ether</th>
<th>30-60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 163702-08-7</td>
<td></td>
</tr>
<tr>
<td>EC number: 422-270-2</td>
<td></td>
</tr>
<tr>
<td>REACH registration number: 01-0000016878-53-0001</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Not Classified

<table>
<thead>
<tr>
<th>PROPAN-2-OL</th>
<th>5-10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 67-63-0</td>
<td></td>
</tr>
<tr>
<td>EC number: 200-661-7</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Flam. Liq. 2 - H225
Eye Irrit. 2 - H319
STOT SE 3 - H336

<table>
<thead>
<tr>
<th>1-METHOXY-2-PROPANOL</th>
<th>5-10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 107-98-2</td>
<td></td>
</tr>
<tr>
<td>EC number: 203-539-1</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Flam. Liq. 3 - H226
STOT SE 3 - H336
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

<table>
<thead>
<tr>
<th>NITROMETHANE</th>
<th>&lt;1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 75-52-5</td>
<td>EC number: 200-876-6</td>
</tr>
</tbody>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Acute Tox. 4 - H302
- Carc. 2 - H351
- Repr. 2 - H361

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.

**Composition**

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

**General information**
If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.

**Inhalation**
No specific recommendations. If throat irritation or coughing persists, proceed as follows. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if any discomfort continues.

**Ingestion**
No specific recommendations. If throat irritation or coughing persists, proceed as follows. Rinse mouth. Get medical attention if any discomfort continues.

**Skin contact**
No specific recommendations. Rinse with water. Get medical attention if any discomfort continues.

**Eye contact**
Remove any contact lenses and open eyelids wide apart. Rinse with water. Get medical attention if any discomfort continues.

**Protection of first aiders**
Use protective equipment appropriate for surrounding materials.

#### 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**
No specific symptoms known. Spray/mists may cause respiratory tract irritation.

**Ingestion**
No specific symptoms known. May cause discomfort if swallowed.

**Skin contact**
No specific symptoms known. May cause discomfort.

**Eye contact**
No specific symptoms known. May be slightly irritating to eyes.

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

**Notes for the doctor**
Treat symptomatically.

**Specific treatments**
No special treatment required.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media**
The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
**OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID**

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

**Specific hazards**
Containers can burst violently or explode when heated, due to excessive pressure build-up.

**Hazardous combustion products**
Thermal decomposition or combustion products may include the following substances:
Harmful gases or vapours.

5.3. Advice for firefighters

**Protective actions during firefighting**
Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak.

**Special protective equipment for firefighters**
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

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**SECTION 6: Accidental release measures**

6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions**
No specific recommendations. For personal protection, see Section 8.

6.2. Environmental precautions

**Environmental precautions**
Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

**Methods for cleaning up**
Reuse or recycle products wherever possible. Absorb spillage to prevent material damage. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dispose of contents/container in accordance with national regulations.

6.4. Reference to other sections

**Reference to other sections**
For personal protection, see Section 8. For waste disposal, see Section 13.

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**SECTION 7: Handling and storage**

7.1. Precautions for safe handling

**Usage precautions**
Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists.

**Advice on general occupational hygiene**
Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions**
Store away from incompatible materials (see Section 10). No specific recommendations.

**Storage class**
Unspecified storage.

7.3. Specific end use(s)

**Specific end use(s)**
The identified uses for this product are detailed in Section 1.2.
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Methyl Nonfluorobutyl Ether
Long-term exposure limit (8-hour TWA): 750 ppm

Methyl Nonfluoroisobutyl Ether
Long-term exposure limit (8-hour TWA): 750 ppm

PROPN-2-OL
Long-term exposure limit (8-hour TWA): WEL 400 ppm 999 mg/m³
Short-term exposure limit (15-minute): WEL 500 ppm 1250 mg/m³

1-METHOXY-2-PROPAHOL
Long-term exposure limit (8-hour TWA): WEL 100 ppm 375 mg/m³
Short-term exposure limit (15-minute): WEL 150 ppm 560 mg/m³
Sk

NITROMETHANE
Long-term exposure limit (8-hour TWA): WEL 100 ppm 254 mg/m³
Short-term exposure limit (15-minute): WEL 150 ppm 381 mg/m³
WEL = Workplace Exposure Limit
Sk = Can be absorbed through the skin.

Ingredient comments
WEL = Workplace Exposure Limits

8.2. Exposure controls

Protective equipment

Appropriate engineering controls
No specific ventilation requirements.

Eye/face protection
No specific eye protection required during normal use. Large Spillages: Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible.

Hand protection
No specific hand protection recommended. Large Spillages: Wear protective gloves.

Hygiene measures
Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection
No specific recommendations. Provide adequate ventilation. Large Spillages: If ventilation is inadequate, suitable respiratory protection must be worn.

Environmental exposure controls
Not regarded as dangerous for the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance
Clear liquid.

Colour
Colourless.

Odour
Slight alcoholic.

Odour threshold
No information available.

pH
No information available.

Initial boiling point and range
55°C/132°F @ 101.3 kPa
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Flash point  The product is not flammable.
Evaporation rate  1.8 (Ethyl Acetate = 1)
Flammability (solid, gas)  Not applicable.
Upper/lower flammability or explosive limits  Not determined.
Vapour pressure  Not determined.
Vapour density  Not determined. > 1
Relative density  1.35
Bulk density  Not applicable.
Solubility(ies)  Slightly soluble in water.
Partition coefficient  No information available.
Auto-Ignition temperature  No information available.
Decomposition Temperature  No information available.
Viscosity  No information available.
Global Warming Potential (GWP)
9.2. Other information
Refractive index  No information available.
Particle size  Not applicable.
Molecular weight  Not applicable.
Volatile  100%
Saturation concentration  No information available.
Critical temperature  No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reactivity  See the other subsections of this section for further details.

10.2. Chemical stability
Stability  Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions  No potentially hazardous reactions known.

10.4. Conditions to avoid
Conditions to avoid  There are no known conditions that are likely to result in a hazardous situation.

10.5. Incompatible materials
Materials to avoid  No specific material or group of materials is likely to react with the product to produce a hazardous situation.

10.6. Hazardous decomposition products
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Hazardous decomposition products

Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Toxicological effects</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - oral</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Acute toxicity - dermal</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Acute toxicity - inhalation</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Animal data</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Respiratory sensitisation</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Skin sensitisation</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Genotoxicity - in vitro</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>IARC carcinogenicity</td>
<td>Contains a substance which may be potentially carcinogenic. IARC Group 2B Possibly carcinogenic to humans.</td>
</tr>
<tr>
<td>Reproductive toxicity - fertility</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Reproductive toxicity - development</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure</td>
<td>Not classified as a specific target organ toxicant after a single exposure.</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>Not classified as a specific target organ toxicant after repeated exposure.</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure</td>
<td>Not classified as a specific target organ toxicant after repeated exposure.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Based on available data the classification criteria are not met.</td>
</tr>
<tr>
<td>General information</td>
<td>No specific health hazards known. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>No specific symptoms known. Spray/mists may cause respiratory tract irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No specific symptoms known. May cause discomfort if swallowed.</td>
</tr>
</tbody>
</table>
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Skin contact
No specific symptoms known. May cause discomfort.

Eye contact
No specific symptoms known. May be slightly irritating to eyes.

Route of exposure
Ingestion Inhalation Skin and/or eye contact

Target organs
No specific target organs known.

Toxicological information on ingredients.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Other health effects</th>
<th>Acute toxicity - oral</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methyl Nonafluorobutyl Ether</strong></td>
<td>There is no evidence that the product can cause cancer.</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity oral (LD₅₀ mg/kg)</td>
<td>5,000.0</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td>ATE oral (mg/kg)</td>
<td>5,000.0</td>
<td></td>
</tr>
<tr>
<td><strong>Methyl Nonafluorobutyl Ether</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity - inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity inhalation (LC₅₀ vapours mg/l)</td>
<td>1,000.0</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td>ATE inhalation (vapours mg/l)</td>
<td>1,000.0</td>
<td></td>
</tr>
</tbody>
</table>

**PROPAN-2-OL**

Carcinogenicity
IARC carcinogenicity
IARC Group 3 Not classifiable as to its carcinogenicity to humans.
NTP carcinogenicity
Not listed.

**NITROMETHANE**

Acute toxicity - oral
ATE oral (mg/kg) 500.0
Carcinogenicity
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

IARC carcinogenicity

IARC Group 2B  Possibly carcinogenic to humans.

SECTION 12: Ecological information

Ecotoxicity

Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

Ecological information on ingredients.

Methyl Nonafuorobutyl Ether

Ecotoxicity

There are no data on the ecotoxicity of this product.

Methyl Nonafluoroisobutyl Ether

Ecotoxicity

The product is not expected to be toxic to aquatic organisms.

12.1. Toxicity

Toxicity

Based on available data the classification criteria are not met.

Ecological information on ingredients.

Methyl Nonafuorobutyl Ether

Toxicity

Not considered toxic to fish.

Methyl Nonafluoroisobutyl Ether

Toxicity

Not considered toxic to fish.

PROPN-2-OL

Acute aquatic toxicity

Acute toxicity - fish

LC₅₀, 96 hours: 9,640 mg/l, Fish

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: 5102 mg/l, Daphnia magna

Acute toxicity - aquatic plants

IC₅₀, 72 hours: >2,000 mg/l, Algae

12.2. Persistence and degradability

Persistence and degradability

The degradability of the product is not known.

Ecological information on ingredients.

Methyl Nonafuorobutyl Ether

Persistence and degradability

No data available.

Methyl Nonafluoroisobutyl Ether

Persistence and degradability

The product is not expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential

No data available on bioaccumulation.
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Partition coefficient

No information available.

Ecological information on ingredients.

Methyl Nonfluorobutyl Ether

Bioaccumulative potential

No data available on bioaccumulation.

Methyl Nonfluoroisobutyl Ether

Bioaccumulative potential

No data available on bioaccumulation.

PROPN-2-OL

Partition coefficient

: 0.05

12.4. Mobility in soil

Mobility

No data available.

Ecological information on ingredients.

Methyl Nonfluorobutyl Ether

Mobility

Not applicable.

Methyl Nonfluoroisobutyl Ether

Mobility

Not applicable.

12.5. Results of PBT and vPvB assessment

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

12.6. Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information

The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way.

Disposal methods

Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste packaging should be collected for reuse or recycling. Incineration or landfill should only be considered when recycling is not feasible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of the local water authority.

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
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

Not applicable.

14.3. Transport hazard class(es)
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

National regulations
Health and Safety at Work etc. Act 1974 (as amended).
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].
EH40/2005 Workplace exposure limits.

EU legislation

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

Inventories

EU - EINECS/ELINCS
None of the ingredients are listed or exempt.

PROPAN-2-OL
EINECS

US - TSCA 12(b) Export Notification

Methyl Nonfluorobutyl Ether
Present.
Methyl Nonfluoroisobutyl Ether
Present.

Philippines – PICCS
OPTIXX - OPTICAL GRADE HIGH PURITY CLEANING FLUID

PROPAN-2-OL
Yes

New Zealand - NZIOC
Not listed.

Taiwan - NECI
Not listed.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
CAS: Chemical Abstracts Service.
ATE: Acute Toxicity Estimate.
LC₅₀: Lethal Concentration to 50% of a test population.
LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
EC₅₀: 50% of maximal Effective Concentration.
PBT: Persistent, Bioaccumulative and Toxic substance.
vPvB: Very Persistent and Very Bioaccumulative.

Training advice
Only trained personnel should use this material.

Revision date
15/10/2018

Revision
17

Supersedes date
15/10/2018

SDS number
BULK - OTX03M

Hazard statements in full
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.

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.