### SAFETY DATA SHEET
**AFL- FCC2 - ENHANCED FORMULA**

<table>
<thead>
<tr>
<th>1. Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product identifier</strong></td>
</tr>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td><strong>Product number</strong></td>
</tr>
</tbody>
</table>

**Recommended use of the chemical and restrictions on use**

**Application**
Cleaning agent.

**Details of the supplier of the safety data sheet**

**Supplier**
AFL
16 Eastgate Park
Belmont, NH 03220
United States of America
CAGE: 0NL21
Tel: +1 603-528-7780
www.AFLglobal.com

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

**Emergency telephone number**
**Emergency telephone** CHEMTREC (800) 424-9300

<table>
<thead>
<tr>
<th>2. Hazard(s) identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification of the substance or mixture</strong></td>
</tr>
<tr>
<td><strong>Physical hazards</strong></td>
</tr>
<tr>
<td><strong>Health hazards</strong></td>
</tr>
<tr>
<td><strong>Environmental hazards</strong></td>
</tr>
</tbody>
</table>

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

**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). Not considered to be a significant hazard due to the small quantities used.
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Hazard statements
NC Not Classified

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

Other hazards
This substance is not classified as PBT or vPvB according to current EU criteria.

3. Composition/Information on ingredients

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>
</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>
</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>
</tbody>
</table>

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

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.

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

4. First-aid measures

Description of first aid measures

General information
Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. Never give anything by mouth to an unconscious person.

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 if any discomfort continues.

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. Consult a physician for specific advice.
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**Skin Contact**
Due to the small packaging, the risk of skin contact is minimal. Remove contaminated clothing and rinse skin thoroughly with water.

**Eye contact**
Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

**Most important symptoms and effects, both acute and delayed**

**General information**
For further information, please refer to section 11.

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

**Ingestion**
Due to the physical nature of this material it is unlikely that swallowing will occur. May cause nausea, headache, dizziness and intoxication. Congestion of the lungs may occur, producing severe shortness of breath.

**Skin contact**
Prolonged skin contact may cause redness and irritation. Mild dermatitis, allergic skin rash.

**Eye contact**
May cause temporary eye irritation.

**Indication of immediate medical attention and special treatment needed**

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

### 5. Fire-fighting measures

<table>
<thead>
<tr>
<th>Extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suitable extinguishing media</strong></td>
</tr>
<tr>
<td>The product is not flammable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special hazards arising from the substance or mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flammability Class</strong></td>
</tr>
<tr>
<td>The product is not flammable.</td>
</tr>
</tbody>
</table>

| **Specific hazards**                                 |
| Protection against nuisance dust must be used when the airborne concentration exceeds 10 mg/m3. 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. |

| **Advice for firefighters**                           |
| Closed containers can burst violently when heated, due to excess pressure build-up. Containers close to fire should be removed or cooled with water. Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. |

| **Special protective equipment for firefighters**     |
| Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. |

### 6. Accidental release measures

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal precautions</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

| **Environmental precautions**                                      |
| Not considered to be a significant hazard due to the small quantities used. Avoid discharge into drains or watercourses or onto the ground. Contain spillage with sand, earth or other suitable non-combustible material. |

<table>
<thead>
<tr>
<th>Environmental precautions</th>
</tr>
</thead>
</table>
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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.

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

7. Handling and storage

Precautions for safe handling

Usage precautions Provide adequate ventilation. Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

Storage precautions Do not store near heat sources or expose to high temperatures. Keep containers upright.

Storage class The product is not flammable.

Specific end uses(s)

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

Usage description Cleaning agent.

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

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

Methyl Nonafluorobutyl Ether

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

Methyl Nonafluoroisobutyl Ether

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

PROPAN-2-OL

Long-term exposure limit (8-hour TWA): OSHA 400 ppm 980 mg/m³
Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 492 mg/m³
Short-term exposure limit (15-minute): ACGIH 400 ppm 984 mg/m³

OSHA = Occupational Safety and Health Administration.
ACGIH = American Conference of Governmental Industrial Hygienists.
A4 = Not Classifiable as a Human Carcinogen.

Additional Occupational Exposure Limits

Ingredient comments WEL = Workplace Exposure Limits Threshold Limit Values (2005), ACGIH, by the American Conference on Governmental Industrial Hygienists. ACGIH = US Standard. SUP = Supplier’s recommendation. EU = Indicative Values according to Commission Directive 91/322/EEC.

Exposure controls

Protective equipment
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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.

Hand protection
Hand protection not required. 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: Neoprene.

Hygiene measures
When using do not eat, drink or smoke. No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products.

Respiratory protection
No specific recommendations. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight alcoholic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No information available</td>
</tr>
<tr>
<td>Initial boiling point and range</td>
<td>54°C/129°F @ 101.3 kPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>58 (BUOAC = 1)</td>
</tr>
<tr>
<td>Evaporation factor</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Upper flammable/explosive limit: 16.7 % (V) Lower flammable/explosive limit: 4 % (V)</td>
</tr>
<tr>
<td>Other flammability</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>27.6 kPa @ 25°C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>7.0</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.48 (H2O = 1) @ 25°C</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Slightly soluble in water</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>&lt;=0.01 Pa s @ 23°C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>
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Refractive index: No information available.
Particle size: Not applicable.
Molecular weight: No information available.
Volatile: 100%
Saturation concentration: No information available.
Critical temperature: No information available.
Volatile organic compound: No information available.
Flammability: The product is not flammable.

10. Stability and reactivity

Reactivity: Strong alkalis. Chemically-active metals.
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.

11. Toxicological information

Information on toxicological effects

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

Inhalation: Vapors 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: Repeated exposure may cause skin dryness or cracking. Product has a defatting effect on skin. May cause allergic contact eczema.

Eye contact: May cause temporary eye irritation.

Methyl Nonafluorobutyl Ether

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

Acute toxicity - oral

| Acute toxicity oral (LD₅₀ mg/kg) | 5,000.0 |
| Species | Rat |
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### methyl norfluorosbutyl ether

<table>
<thead>
<tr>
<th>Test Route</th>
<th>Endpoint</th>
<th>Value (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - oral</td>
<td>ATE oral (mg/kg)</td>
<td>5,000.0</td>
</tr>
<tr>
<td>Acute toxicity - inhalation</td>
<td>ATE inhalation (vapours mg/l)</td>
<td>1,000.0</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
<td></td>
</tr>
</tbody>
</table>

### PROPAN-2-OL

<table>
<thead>
<tr>
<th>Test Route</th>
<th>Endpoint</th>
<th>Value (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - oral</td>
<td>ATE oral (mg/kg)</td>
<td>5,800.0</td>
</tr>
<tr>
<td>Acute toxicity - dermal</td>
<td>ATE dermal (mg/kg)</td>
<td>13,000.0</td>
</tr>
<tr>
<td>Species</td>
<td>Rabbit</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity - inhalation</td>
<td>ATE inhalation (vapours mg/l)</td>
<td>16,000.0</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
<td></td>
</tr>
</tbody>
</table>

### Carcinogenicity

<table>
<thead>
<tr>
<th>Agency</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>Group 3</td>
<td>Not classifiable as to its carcinogenicity to humans.</td>
</tr>
<tr>
<td>NTP</td>
<td></td>
<td>Not listed.</td>
</tr>
</tbody>
</table>
AFL- FCC2 - ENHANCED FORMULA

12. Ecological Information

Ecotoxicity

There are no data on the ecotoxicity of this product.

Methyl Nonafluorobutyl Ether

Ecotoxicity

There are no data on the ecotoxicity of this product.

Methyl Nonfluoroisobutyl Ether

Ecotoxicity

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

Toxicity

Not considered toxic to fish.

Methyl Nonafluorobutyl Ether

Toxicity

Not considered toxic to fish.

Methyl Nonfluoroisobutyl Ether

Toxicity

Not considered toxic to fish.

PROPAN-2-OL

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

Persistence and degradability

No data available.

Methyl Nonafluorobutyl Ether

Persistence and degradability

No data available.

Methyl Nonfluoroisobutyl Ether

Persistence and degradability

The product is not expected to be biodegradable.

Bioaccumulative potential

No data available on bioaccumulation.

Methyl Nonafluorobutyl Ether

Bio-Accumulative Potential

No data available on bioaccumulation.
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Methyl Nonfluoroisobutyl Ether

Bio-Accumulative Potential  No data available on bioaccumulation.

PROPAN-2-OL

Partition coefficient  : 0.05

Mobility in soil

Mobility

The product contains volatile substances which may spread in the atmosphere. Not considered to be a significant hazard due to the small quantities used.

Methyl Nonfluorobutyl Ether

Mobility  Not applicable.

Methyl Nonfluoroisobutyl Ether

Mobility  Not applicable.

Other adverse effects

The product contains volatile organic compounds (VOCs) which have a photochemical ozone creation potential.

13. Disposal considerations

Waste treatment methods

General information

When handling waste, the safety precautions applying to handling of the product should be considered.

Disposal methods

Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

14. Transport information

General

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

UN Number

Not applicable. Non-hazardous substance.

UN proper shipping name

Not applicable. Non-hazardous substance.

Transport hazard class(es)

Not applicable. Non-hazardous substance.

Transport labels

No transport warning sign required. Not regulated.

Packing group

Not applicable. Non-hazardous substance.

Environmental hazards

Environmentally Hazardous Substance

No.
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Special precautions for user
No information required.

Transport in bulk according to
Annex II of MARPOL 73/78
and the IBC Code
No information required. Not relevant.

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)
Not listed.

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.

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

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Present.

California Air Toxics "Hot Spots" (A-II)
Not listed.

California Directors List of Hazardous Substances

PROPAN-2-OL
Present.

Massachusetts "Right To Know" List

PROPAN-2-OL
Present.

Rhode Island "Right To Know" List

PROPAN-2-OL
Present.
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**Minnesota "Right To Know" List**

**PROPAN-2-OL**
Present.

**New Jersey "Right To Know" List**

**PROPAN-2-OL**
Present.

**Pennsylvania "Right To Know" List**

**PROPAN-2-OL**
Present.

**Inventories**

- **Canada - DSL/NDSL**
  - DSL

- **US - TSCA**
  - Yes

### 16. Other information

<table>
<thead>
<tr>
<th>Revision comments</th>
<th>NOTE: Lines within the margin indicate significant changes from the previous revision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>12/21/2016</td>
</tr>
<tr>
<td>Revision</td>
<td>24</td>
</tr>
<tr>
<td>Supersedes date</td>
<td>7/5/2016</td>
</tr>
<tr>
<td>SDS No.</td>
<td>BULK - FCC2-00-0902</td>
</tr>
<tr>
<td>SDS status</td>
<td>Approved.</td>
</tr>
<tr>
<td>Hazard statements in full</td>
<td></td>
</tr>
<tr>
<td>H225 Highly flammable liquid and vapor.</td>
<td></td>
</tr>
<tr>
<td>H319 Causes serious eye irritation.</td>
<td></td>
</tr>
<tr>
<td>H336 May cause drowsiness or dizziness.</td>
<td></td>
</tr>
<tr>
<td>NFPA - health hazard</td>
<td>Extremely hazardous, serious injury. (3)</td>
</tr>
<tr>
<td>NFPA - flammability hazard</td>
<td>Burns only if pre-heated. (1)</td>
</tr>
<tr>
<td>NFPA - instability hazard</td>
<td>Normally stable. (0)</td>
</tr>
<tr>
<td>NFPA - special hazard</td>
<td>N/A</td>
</tr>
<tr>
<td>ACA HMIS Health rating.</td>
<td>Slight Hazard. (1)</td>
</tr>
<tr>
<td>ACA HMIS Flammability rating.</td>
<td>Burns only if pre-heated. (1)</td>
</tr>
<tr>
<td>ACA HMIS Physical hazard rating.</td>
<td>Normally stable. (0)</td>
</tr>
<tr>
<td>ACA HMIS Personal protection rating.</td>
<td>B</td>
</tr>
</tbody>
</table>

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.