SAFETY DATA SHEET
FRZ - GENERAL PURPOSE CIRCUIT CHILLER, AEROSOL

### 1. Identification

<table>
<thead>
<tr>
<th><strong>Product identifier</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>FRZ - GENERAL PURPOSE CIRCUIT CHILLER, AEROSOL</td>
</tr>
<tr>
<td><strong>Product number</strong></td>
<td>MCC-FRZ</td>
</tr>
<tr>
<td><strong>Synonyms; trade names</strong></td>
<td>Also known as: &quot;Micro Freeze Circuit Cooler&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Details of the supplier of the safety data sheet</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supplier</strong></td>
<td>MicroCare Corporation</td>
</tr>
<tr>
<td><strong>Manufacturer</strong></td>
<td>MICROCARE CORPORATION</td>
</tr>
<tr>
<td></td>
<td>595 John Downey Drive</td>
</tr>
<tr>
<td></td>
<td>New Britain, CT 06051</td>
</tr>
<tr>
<td></td>
<td>United States of America</td>
</tr>
<tr>
<td></td>
<td>CAGE: OATV9</td>
</tr>
<tr>
<td></td>
<td>Tel: +1 860-827-0626</td>
</tr>
<tr>
<td></td>
<td>Fax: +1 860-827-8105</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:techsupport@microcare.com">techsupport@microcare.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Emergency telephone number</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency telephone</strong></td>
<td>CHEMTREC (800) 424-9300</td>
</tr>
</tbody>
</table>

### 2. Hazard(s) identification

<table>
<thead>
<tr>
<th><strong>Classification of the substance or mixture</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical hazards</strong></td>
<td>Press. Gas, Liquefied - H280</td>
</tr>
<tr>
<td><strong>Health hazards</strong></td>
<td>Not Classified</td>
</tr>
<tr>
<td><strong>Environmental hazards</strong></td>
<td>Not Classified</td>
</tr>
</tbody>
</table>

| **Human health**                              | Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. Mild dermatitis, allergic skin rash. |
| **Physicochemical**                           | Aerosol containers can explode when heated, due to excessive pressure build-up. 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. |

<table>
<thead>
<tr>
<th><strong>Label elements</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pictogram</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Signal word</strong></td>
<td>Warning</td>
</tr>
</tbody>
</table>
Hazard statements
H280 Contains gas under pressure; may explode if heated.

Precautionary statements
P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.
P251 Pressurized container: Do not pierce or burn, even after use
P410+P403 Protect from sunlight. Store in a well-ventilated place.
P412 Do not expose to temperatures exceeding 50°C/122°F.

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

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

3. Composition/information on ingredients

MIXTURES

<table>
<thead>
<tr>
<th>HFC-134a Tetrafluoroethane</th>
<th>60-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 811-97-2</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Press. Gas, Liquefied - H280

The Full Text for all Hazard Statements are 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

4. First-aid measures

Description of first aid measures

General information
Contact with liquid form may cause frostbite. Never give anything by mouth to an unconscious person. Do not induce vomiting. Place unconscious person on their side in the recovery position and ensure breathing can take place. If breathing stops, provide artificial respiration. Keep out of the reach of children.

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.

Ingestion
Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Consult a physician for specific advice.

Skin Contact
Contact with liquid form may cause frostbite. Remove contaminated clothing and rinse skin thoroughly with water.

Eye contact
Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Consult a physician for specific advice.

Most important symptoms and effects, both acute and delayed

General information
Contact with liquid form may cause frostbite. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation
Vapors may cause headache, fatigue, dizziness and nausea.

Ingestion
Due to the physical nature of this material it is unlikely that swallowing will occur. Drowsiness, dizziness, disorientation, vertigo.
FRZ - GENERAL PURPOSE CIRCUIT CHILLER, AEROSOL

Skin contact
Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Eye contact
Visual disturbances, including blurred vision.

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

Extinguishing media

Suitable extinguishing media
The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

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 vapors. Aerosol containers can explode when heated, due to excessive 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

Protective actions during firefighting
Move containers from fire area if it can be done without risk.

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.

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
Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation.

7. Handling and storage

Precautions for safe handling

Usage precautions
Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes. Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Keep out of the reach of children.

Conditions for safe storage, including any incompatibilities

Storage precautions
Aerosol cans: Must not be exposed to direct sunlight or temperatures above 50°C.

Specific end uses(s)

Reference to other sections.
Store away from incompatible materials (see Section 10).
8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits
HFC-134a Tetrafluoroethane

Long-term exposure limit (8-hour TWA): OES 4240 mg/m³
Short-term exposure limit (15-minute): OES

Additional Occupational Exposure Limits

Ingredient comments
Threshold Limit Values (2005), ACGIH, by the American Conference on Governmental Industrial Hygienists.

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.

Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible.

Other skin and body protection
Wear suitable protective clothing as protection against splashing or contamination.

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

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.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance
Liquid. Gas Aerosol.

Color
Colorless.

Odor
Slight. Ether.

Odor threshold
No information available.

pH
No information available.

Melting point
No information available.

Initial boiling point and range
No information available.

Flash point
No information available.

Evaporation rate
No information available.
### FRZ - GENERAL PURPOSE CIRCUIT CHILLER, AEROSOL

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<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</td>
<td>Upper flammable/explosive limit: n/a Lower</td>
</tr>
<tr>
<td>explosive limits</td>
<td>flammable/explosive limit: n/a</td>
</tr>
<tr>
<td>Other flammability</td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>96 PSIA @ 25°C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>3.6 @ 25 C / 77 F</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available.</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>No information available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available.</td>
</tr>
<tr>
<td>Comments</td>
<td>Aerosol.</td>
</tr>
<tr>
<td>Refractive index</td>
<td>No information available.</td>
</tr>
<tr>
<td>Particle size</td>
<td>No information available.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available.</td>
</tr>
<tr>
<td>Volatility</td>
<td>100%</td>
</tr>
<tr>
<td>Saturation concentration</td>
<td>No information available.</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Volatile organic compound</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability</td>
<td>The product is not flammable.</td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>There are no known reactivity hazards</td>
</tr>
<tr>
<td></td>
<td>associated with this product.</td>
</tr>
<tr>
<td>Stability</td>
<td>Stable at normal ambient temperatures and</td>
</tr>
<tr>
<td></td>
<td>when used as recommended.</td>
</tr>
<tr>
<td>Possibility of hazardous</td>
<td>Will not polymerize.</td>
</tr>
<tr>
<td>reactions</td>
<td></td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Avoid exposing aerosol containers to high</td>
</tr>
<tr>
<td></td>
<td>temperatures or direct sunlight. Keep</td>
</tr>
<tr>
<td></td>
<td>away from heat, sparks and open flame.</td>
</tr>
<tr>
<td></td>
<td>Thermal decomposition or combustion</td>
</tr>
<tr>
<td></td>
<td>products may include the following</td>
</tr>
<tr>
<td></td>
<td>substances: Toxic and corrosive gases or</td>
</tr>
<tr>
<td></td>
<td>vapors.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Alkali metals. Alkaline earth metals.</td>
</tr>
<tr>
<td></td>
<td>Powdered metal.</td>
</tr>
</tbody>
</table>
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Hazardous decomposition products

11. Toxicological information

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

Inhalation Vapors irritate the respiratory system. May cause coughing and difficulties 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. Contact with liquid form may cause frostbite.

Eye contact May cause temporary eye irritation.

Toxicological information on ingredients.

HFC-134a Tetrafluoroethane

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

Acute toxicity - inhalation

<table>
<thead>
<tr>
<th>Species</th>
<th>ATE inhalation (gases ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>567,000.0</td>
</tr>
</tbody>
</table>

12. Ecological Information

Ecotoxicity There are no data on the ecotoxicity of this product.

Toxicity Not considered toxic to fish.

Ecological information on ingredients.

HFC-134a Tetrafluoroethane

Acute toxicity - fish LC₅₀, 96 hours: 450 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 980 mg/l, Daphnia magna

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

Bioaccumulative potential
No data available on bioaccumulation.

Partition coefficient
No information available.

Ecological information on ingredients.
FRZ - GENERAL PURPOSE CIRCUIT CHILLER, AEROSOL

HFC-134a Tetrafluoroethane

Partition coefficient  Pow: 1.06

Mobility in soil

Mobility  Not applicable.

Results of PBT and vPvB assessment

Results of PBT and vPvB assessment  This product does not contain any substances classified as PBT or vPvB.

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  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.

14. Transport information

UN Number

UN No. (TDG)  UN1950
UN No. (IMDG)  UN1950
UN No. (ICAO)  UN1950
UN No. (DOT)  UN1078 (Ref US DOT SP 10232) USA ONLY

UN proper shipping name

Proper shipping name (TDG)  CONSUMER COMMODITY ORM-D (USA ONLY)
Proper shipping name (IMDG)  UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY
Proper shipping name (ICAO)  UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY
Proper shipping name (DOT)  CONSUMER COMMODITY ORM-D (USA ONLY)

Transport hazard class(es)

TDG class  2.2
IMDG Class  2.2

Transport labels

Packing group

Not applicable.

ICAO packing group  Not Applicable
FRZ - GENERAL PURPOSE CIRCUIT CHILLER, AEROSOL

Environmental hazards

Environmentally Hazardous Substance
No.

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)
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
Pressure

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins
Not listed.

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

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

Massachusetts "Right To Know" List
Not listed.

Rhode Island "Right To Know" List
Not listed.

New Jersey "Right To Know" List
Not listed.

Pennsylvania "Right To Know" List
Not listed.

Inventories

Canada - DSL/NDSL
DSL
16. Other information

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

Revision date 2/22/2016
Revision 27
Supersedes date 2/22/2016
SDS No. AEROSOL - FRZ
SDS status Approved.
Hazard statements in full H280 Contains gas under pressure; may explode if heated.
NFPA - health hazard Irritation, minor residual injury. (1)
NFPA - flammability hazard Will not burn. (0)
NFPA - instability hazard Unstable if heated. (1)
NFPA - special hazard N/A
ACA HMIS Health rating Slight Hazard. (1)
ACA HMIS Flammability rating Will not burn. (0)
ACA HMIS Physical hazard rating Unstable if heated. (1)
ACA HMIS Personal protection rating A

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.