SECTION 1: Identification

1.1. Identification

Trade name : Frostbite
Product code : 3803100

1.2. Recommended use and restrictions on use

Recommended use : For rapid cooling of fresh or paraffin embedded tissue
Restrictions on use : Other uses

1.3. Supplier

Leica Biosystems Richmond, Inc
5205 Route 12
Richmond, IL 60071 - USA
T 844-534-2262
LBSNA-LBS-QA@leicabiosystems.com - leicabiosystems.com

1.4. Emergency telephone number

<table>
<thead>
<tr>
<th>Organization/Company</th>
<th>Emergency number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChemTrec</td>
<td>800-424-9300</td>
</tr>
<tr>
<td>International Calls (call collect)</td>
<td>+1 703-527-3887</td>
</tr>
<tr>
<td>Australia 24 Hr Poisons Information Centre</td>
<td>13 11 26</td>
</tr>
</tbody>
</table>

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Not classified

2.2. GHS Label elements, including precautionary statements

GHS-US labeling
No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name : Frostbite

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane</td>
<td>(CAS No) 811-97-2</td>
<td>100</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable
SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact: Wash skin with plenty of water.
First-aid measures after eye contact: Rinse eyes with water as a precaution.
First-aid measures after ingestion: Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

Reactivity: The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Frostbite
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

1,1,1,2-Tetrafluoroethane (811-97-2)
Not applicable

8.2. Appropriate engineering controls
Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment
Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Gas</td>
</tr>
<tr>
<td>Color</td>
<td>Mixture contains one or more component(s) which have the following colour(s): Colourless</td>
</tr>
<tr>
<td>Odor</td>
<td>There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour: Ether-like odour</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>1.21</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosion limits: No data available
Explosive properties: No data available
Oxidizing properties: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>1,1,1,2-Tetrafluoroethane (811-97-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
   pH: 2 - 3

Serious eye damage/irritation: Not classified
   pH: 2 - 3

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

Specific target organ toxicity – single exposure: Not classified

Specific target organ toxicity – repeated exposure: Not classified

Aspiration hazard: Not classified
### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general:** The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

<table>
<thead>
<tr>
<th>Compound</th>
<th>LC50 fish 1</th>
<th>EC50 Daphnia 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (811-97-2)</td>
<td>450 mg/l (LC50; 96 h)</td>
<td>980 mg/l (EC50; 48 h)</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Compound</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (811-97-2)</td>
<td>Not readily biodegradable in water.</td>
</tr>
</tbody>
</table>

#### 12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Compound</th>
<th>BCF other aquatic organisms 1</th>
<th>Log Pow</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (811-97-2)</td>
<td>5 - 58 (BCF)</td>
<td>1.06 (OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)</td>
<td>Low potential for bioaccumulation (BCF &lt; 500).</td>
</tr>
</tbody>
</table>

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

- **Effect on the global warming:** No known effects from this product.
- **GWPmix comment:** No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

<table>
<thead>
<tr>
<th>Waste treatment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispose of contents/container in accordance with licensed collector’s sorting instructions.</td>
</tr>
</tbody>
</table>

### SECTION 14: Transport information

#### Department of Transportation (DOT)

- **Transport document description:** UN3159 1,1,1,2-Tetrafluoroethane, 2.2
- **UN-No. (DOT):** UN3159
- **Proper Shipping Name (DOT):** 1,1,1,2-Tetrafluoroethane
- **Class (DOT):** 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
- **Hazard labels (DOT):** 2.2 - Non-flammable gas

| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | 75 kg |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | 150 kg |
Other information: Product ships as UN3159 under DOT SP 10232 for all shipment originating within the United States of America. This US DOT special permit is valid for use in the US only. Special permit DOT SP 10232 does not apply to shipments originating outside of the US, where UN ID 1950 must be used.

Transport by sea

Transport document description (IMDG): UN 3159 1,1,1,2-Tetrafluoroethane, 2.2
UN-No. (IMDG): 3159
Proper Shipping Name (IMDG): 1,1,1,2-Tetrafluoroethane
Class (IMDG): 2.2 - Non-flammable, non-toxic gases

Air transport

Transport document description (IATA): UN 3159 1,1,1,2-Tetrafluoroethane, 2.2
UN-No. (IATA): 3159
Proper Shipping Name (IATA): 1,1,1,2-Tetrafluoroethane
Class (IATA): 2.2 - Gases: Non-flammable, non-toxic

SECTION 15: Regulatory information

15.1. US Federal regulations

1,1,1,2-Tetrafluoroethane (811-97-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

1,1,1,2-Tetrafluoroethane (811-97-2)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations

1,1,1,2-Tetrafluoroethane (811-97-2)
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

SDS US Leica

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.