**** MATERIAL SAFETY DATA SHEET ****

**HistoFreeze 2000**

**7004**

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

**MSDS Name:** HistoFreeze 2000

**Catalog Numbers:** 12-845-33

**Synonyms:** Freez-It 2000

**Company Identification:** Fisher Scientific

**1 Regent Road**

**Fair Lawn, NJ 07410**

**Emergency Number:** 201-798-7100

**For CHMETREC assistance, call:** 800-424-3930

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>811-97-2</td>
<td>1,1,1,2-tetrafluoroethane</td>
<td>100.0%</td>
<td>212-377-0</td>
</tr>
</tbody>
</table>

**** SECTION 3 - HAZARDS IDENTIFICATION ****

**EMERGENCY OVERVIEW**

Appearance: Clear colorless liquid gas.

Warning: Vapor reduces oxygen available for breathing. Causes digestive and respiratory tract irritation. Eye contact may result in permanent eye damage. May cause frostbite.

**Potential Health Effects**

**Eye:**

- Not available.
- Contact with liquid may cause severe tissue damage because of frostbite.

**Skin:**

- Not available.
- Contact with liquid may cause skin damage due to frostbite.

**Inhalation:**

- Application hazard. May cause irritation of the digestive tract.
- Vapor reduces oxygen available for breathing. May cause dyspnea with difficult breathing from shortness of breath.

- Chronic: No information found.

**** SECTION 4 - FIRST AID MEASURES ****

**Eyes:**

- Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

**Skin:**

- Get medical aid if irritation develops or persists. Treat for frostbite.

**Inhalation:**

- Do not induce vomiting. Get medical aid immediately.

**Notes to Physician:**

Substance causes cardiac sensitization to endogenous catecholamines which may lead to cardiac arrhythmias. Do not use adrenergic agents such as epinephrine or pseudoephedrine.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

**General Information:**

- As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Extinguishing Media:**

- For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

**Autoignition Temperature:** Not applicable.

**Flash Point:** Not applicable.

**NFPA Rating:** Not published.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

- Absorb the liquid and scrub the area with detergent and water.

**** SECTION 7 - HANDLING AND STORAGE ****

**Handling:**

- Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with skin and eyes. Do not get on skin or in eyes.

**Storage:**

- Keep away from heat and flame. Store in a cool, dry place. Do not store in direct sunlight.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

**Engineering Controls:**

- Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits:**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-tetrafluoroethane</td>
<td>None listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:**

1,1,1,2-tetrafluoroethane

No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment:**

**Eyes:**

- Wear appropriate protective eyewear or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133.

**Skin:**

- Wear appropriate protective eye-goggles to prevent skin exposure.

**Respirators:**

- Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear colorless liquid gas</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight ethereal odor</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>96 mm Hg @ 77°F</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.18 @ 77°F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>[butyl acetate]-1</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>15.773°F</td>
</tr>
<tr>
<td>Freezing/Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility</td>
<td>0.15% @ 77°F in water.</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>1.21 (water-1)</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>CH₂FCF₃</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>102.0076</td>
</tr>
</tbody>
</table>

**** SECTION 10 - STABILITY AND REACTIVITY ****

**Chemical Stability:**

- Stable under normal temperatures and pressures.

**Conditions to Avoid:**

- Incompatible materials, excess heat, temperature above 40°C.

**Incompatibilities with Other Materials:**

- Alkali and alkaline earth metals, powdered aluminum, zinc, magnesium and beryllium.

**Hazardous Decomposition Products:**

- Hydrofluoric acid, carbonyl fluoride.

**Hazardous Polymerization:** Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

**RTECS:**

B11-97-2 unlisted.

LD₅₀/LC₅₀:

Not available.
Carcinogenicity:
1,1,1,2-tetrafluoroethane
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: Not listed.
RCRA D-Series Chronic Toxicity Reference Levels: Not listed.
RCRA F-Series: Not listed.
RCRA P-Series: Not listed.
RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
No information available
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

A. Federal
TSCA
CAS R# 811-97-2 is listed on the TSCA inventory.

Health & Safety Reporting List
CAS# 811-97-2, Effective Date: October 15, 1990; Sunset Date: November
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

SARA
Section 302 (IR)
None of the chemicals in this material have an IR.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.

Section 313
None of the chemicals are reportable under Section 313.

Clean Air Act
This material does not contain any hazardous air pollutants.

Clean Water Act
None of the chemicals in this product are listed as Hazardous Substances under the CWA.

OSHA
None of the chemicals in this product are considered highly hazardous by OSHA.

B. State
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level
None of the chemicals in this product are listed.

C. International
Canada
CAS R# 811-97-2 is listed on Canada's DSL/NDSL List.

European Labeling in Accordance with EC Directives

Hazard Symbols: Not available.
Risk Phrases:
Safety Phrases:
Exposure Limits:
OSHA
TLV-STEL 2 mg/m3

**** SECTION 16 - ADDITIONAL INFORMATION ****

Additional Information:
No additional information available.
MSDS Creation Date: 5/17/1996 Revision #3 Date: 5/08/1996

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to