# MATERIAL SAFETY DATA SHEET

## IDENTIFICATION AND EMERGENCY INFORMATION

<table>
<thead>
<tr>
<th>Product Name</th>
<th>SHUR/Freeze</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Code (Catalog Number)</td>
<td>FRZ-1 (Catalog number change only-previous H-FRZ-1)</td>
</tr>
<tr>
<td>Product Category (Chemical Name)</td>
<td>hydrofluorocarbon</td>
</tr>
<tr>
<td>Product Appearance and Odor</td>
<td>Clear gas at standard temperature and pressure with a slight ethereal odor. Finished package: aerosol container filled w/liquified gas.</td>
</tr>
<tr>
<td>Emergency Notification</td>
<td>Chem-Tel 1-800-255-3924</td>
</tr>
</tbody>
</table>

## COMPONENTS AND HAZARD INFORMATION

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>%</th>
<th>OSHA TWA ppm</th>
<th>OSHA STEL ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane</td>
<td>811-97-2</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

## PHYSICAL DATA

**THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES AND SHOULD NOT BE USED FOR PRECISE DESIGN PURPOSES.**

<table>
<thead>
<tr>
<th>Boiling Range</th>
<th>Specific Gravity</th>
<th>Molecular Weight</th>
<th>Viscosity</th>
<th>Percent Volatile by Volume</th>
<th>Vapor Pressure @25 C degrees</th>
<th>Vapor Density (Air = 1)</th>
<th>Pour, Congealing or Melting Point</th>
<th>Solubility in Water @1 ATM and 25°C (77°F)</th>
<th>Evaporation Rate @1 ATM and 25°C (77°F) (n-Butyl Acetate =1)</th>
<th>pH</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-15</td>
<td>1.21</td>
<td>NE</td>
<td>NE</td>
<td>100</td>
<td>96 psia</td>
<td>&gt;1</td>
<td>NA</td>
<td>substantial</td>
<td>&gt;1</td>
<td></td>
<td>NA</td>
</tr>
</tbody>
</table>

## FIRE AND EXPLOSION HAZARD INFORMATION

<table>
<thead>
<tr>
<th>Flash Point (Minimum)</th>
<th>Autoignition Temperature</th>
<th>Test Mode</th>
<th>LEL</th>
<th>UEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE</td>
<td>&gt;1369°F</td>
<td></td>
<td>non-flammable</td>
<td>non-flammable</td>
</tr>
</tbody>
</table>

Handling Precautions: NA

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NA = not applicable  
NL = not listed  
NE = not established  
NRR = not normally required

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**Flammable or Explosive Limits (Approximate Percent by Volume in Air)**
NE

**Extinguishing Media**
Use media appropriate for surrounding material.

**Fire Fighting Procedures**
Water may be used to cool closed containers to prevent pressure build-up and possible bursting when exposed to high temperatures. Firemen should wear self-contained, positive pressure, respiratory equipment. Hazardous decomposition products.

**Decomposition Products Under Fire Condition**
This material can be decomposed by high temperature (open flames, flowing metal surfaces, etc.) forming hydrofluoric acids and possibly carbonyl halides.

**“Empty” Container Warning**

**Unusual Fire and Explosion Hazards**
Contents under pressure. Keep temperatures of containers below 120°F to prevent bursting. Exposure to temperature above 120°F may cause can to burst with violence and cause injury.

**HEALTH AND HAZARD INFORMATION**

**Variability Among Individuals**

**Signs and symptoms of overexposure**
Skin Contact: Liquid contact can cause frostbite.
Eye Contact: Liquid contact can cause frostbite
Inhalation: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Breathing high concentrations of vapor may cause lightheadedness, giddiness, shortness of breath, and may lead to narcosis, cardiac irregularities, unconsciousness or death.

**Effects of Overexposure**
Intentional misuse by deliberately concentrating and inhaling the contents of the can may be harmful or fatal.

**Nature of Hazard and Toxicity Information**

**Pre-existing Medical Conditions which may be Aggravated by Exposure**

**Threshold Limit Value**
DuPont recommended 1,000 ppm TWA exposure level.

**Health Hazards**

**PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES**

**Eye Contact**
Immediately flush eyes with plenty of cold water. Call a physician.

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### Skin
Flush with water. Treat for frostbite if necessary.

### Inhalation
Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing difficult, give oxygen. Do not give epinephrine or similar drugs. Call a physician.

### Ingestion
Ingestion is not considered a potential route of exposure.

**SEEK MEDICAL TREATMENT IF DISCOMFORT PERSISTS.**

**NOTE TO PHYSICIAN:** Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should only be used with special caution in situations of emergency life support.

## Reactivity

<table>
<thead>
<tr>
<th>Stability</th>
<th>Incompatibility</th>
<th>Hazardous Decomposition Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable</td>
<td>Alkali or alkaline earth metals; powdered aluminum, Zinc, Be, etc.</td>
<td>This material can be decomposed by high temperature (open flames, flowing metal surface, etc.) forming hydrofluoric acids and possibly carbonyl halides.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Materials to Avoid</th>
<th>Hazardous Polymerization</th>
<th>Conditions to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>Will not occur.</td>
<td>Avoid excessive heat, ignition sources, open flames, or other high temperatures which induce thermal decomposition.</td>
</tr>
</tbody>
</table>

## Environmental Information

**Steps to be Taken in Case Material is Released or Spilled**
Ventilate area, especially low places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus for large spills.

**Disposal**
Dispose in accordance with federal, state, and local regulations. Do not incinerate closed or empty containers.

**Other Precautions:**
Contents under pressure. Do not puncture or incinerate. Exposure to temperatures above 120°F may cause can to burst with violence and cause injury. Vapors are heavier than air and will collect in low areas.

**Precautions to be taken in handling and storage**
Avoid skin and eye contact with spray and liquid due to frostbite hazard. Do not store above 110°F. Do not store near any open flames or ignition sources.

**THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL LAWS AND REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES.**

**Reportable Quantity (RQ), EPA Regulation 40 CFR 302 (CERCLA Section 102)**

**Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 (SARA Sections 301-304)**

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Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313)
This product does not contain any ingredients subject to SARA Section 313.

Hazardous Chemical Reporting, EPA Regulation 40 CFR 370 (SARA Sections 311-312)

SPECIAL STATE NOTIFICATIONS

PROTECTION AND PRECAUTIONS

Ventilation
Local or mechanical exhaust to keep below TLV.

Respiratory Protection
Under normal use conditions, no respiratory protection is required. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs.

Protective Gloves
Lined butyl gloves should be worn when handling liquid.

Eye Protection
Safety glasses or goggles should be worn when handling liquid.

Other Protective Equipment
None reasonably foreseeable.

TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

Transportation Incident Information

U.S. DOT Hazardous Materials Shipping Description

OSHA Required Label Information

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