Section 1: Product and Company Identification
Product Name: PELCO Histo/Cyto-freeze™
Synonym: 
Company Name
Ted Pella, Inc., P.O. Box 492477, Redding, CA 96049-2477
Domestic Phone (800) 237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)
International Phone (01) (530) 243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)
Chemtrec Emergency Number 1-800-424-9300 24 hrs a day.

Section 2: Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Principle Component(s)</th>
<th>%</th>
<th>OSHA PEL mg/m³</th>
<th>ACGIH TLV mg/m³</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethene (811-97-2)</td>
<td>100</td>
<td>NE</td>
<td>NE</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Ingredients are not considered hazardous under the Federal Hazard Communication Standard.
DuPont AEL (Acceptable Exposure Limit): 1000 PPM, 8 & 12 Hr. TWA.
WEEL (AIHA): 1000 PPM, 8 Hr. TWA.
EPA's inhalation reference concentration (daily inhalational exposure likely to be without an appreciable risk of deleterious effects during a lifetime) for 1,1,1,2-tetra-fluoroethane is 80 mg/m³. See Section 14.

Section 3: Hazard Identification
Emergency overview
Appearance: Clear, colorless gas. CONTENTS UNDER PRESSURE.
Immediate effects: Aerosol. Pressurized container may explode when exposed to heat or flame. Health injuries are not known or expected under normal use.
Potential health effects
Primary Routes of entry: Inhalation, eyes, skin.
Signs and Symptoms of Overexposure: ND
Eyes: Irritant. Liquid may cause freezing.
Skin: Contact with liquid may cause freezing or frost bite.
Ingestion: Not considered a potential route of exposure.
Inhalation: High concentrations of vapor are harmful and may cause heart irregularities, unconscious, or death.

Chronic Exposure: ND

Chemical Listed As Carcinogen Or Potential Carcinogen: None

See Toxicological Information (Section11)

Potential environmental effects
See Ecological Information (Section 12)

Section 4: First Aid Measures

If accidental overexposure is suspected
Eye(s) Contact: Flush eyes with large amounts of water and allow to evaporate. Get medical attention if irritation persists.

Skin Contact: Wash with copious amounts of water for at least 15 minutes. Contact medical attention if complications arise.

Inhalation: If unconscious, remove to fresh air and call a physician.

Ingestion: Have victim rinse mouth thoroughly with water.

Note to physician
Treatment: NIF

Medical Conditions generally Aggravated by Exposure: Preexisting diseases of the central nervous system may be aggravated by exposure to this product.

Section 5: Fire Fighting Measures

Flash Point: Not a fire hazard. The product is not flammable.

Flammable Limits: None

Auto-ignition point: >743 °C

Fire Extinguishing Media: Carbon dioxide, foam and/or dry chemical may be used.

Special Fire Fighting Procedures: Containers should be cooled with water to prevent vapor pressure build up. Use equipment or shielding, as required, to protect personnel from containers bursting, rupturing or venting.

Unusual Fire and Explosion Hazards: At elevated temperatures (over 54C-130F) containers exposed to direct flame or heat contact should be cooled with water to prevent weakening of container structure.

Hazardous combustion products: Oxides of carbon. Hydrofluoric acid, carbonyl fluoride, and additional toxic chemicals may be formed in small amounts.

DOT Class: ORM-D

Section 6: Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled: Remove all sources of ignition and provide good ventilation.

Waste Disposal Methods: Do not puncture or incinerate containers. When contents are depleted continue to depress button until all gas is expelled. Dispose of waste according to Federal, State and Local Regulations.

Section 7: Handling and Storage

Precautions to be Taken in Handling and Storage: Avoid breathing vapor. Keep away from heat and flame. Use with adequate ventilation. Do not puncture of incinerate
containers. Do not expose to direct sunlight or store at temperatures above 130F (54C). Store as Level 3 Aerosol (NFPA 30B). Storage temperature: Ambient. Storage Pressure: ND

**Section 8: Exposure Controls / Personal Protection**

**Engineering Controls**
Ventilation required: Provide sufficient mechanical ventilation to maintain exposure below TLV(s). Overexposure to vapors and mist may be prevented by ensuring ventilation controls, local exhausts and/or fresh air entry.

**Personal Protection Equipment**
Respiratory protection: None if adequate ventilation is maintained. Protective gloves: Optional: Chemical resistant gloves. Skin protection: Wear impervious clothing to prevent skin contact. Eye protection: Chemical safety glasses are recommended. Additional clothing and/or equipment: ND

**Exposure Guidelines**
See Composition/Information on Ingredients (Section 2)

**Section 9: Physical and Chemical Properties**
Appearance and Physical State: Clear, colorless, compressed liquefied gas. Odor (threshold): None Specific Gravity (H₂O=1): 1.21 Pressure (mm Hg): 72-82 psig @ 70º F Vapor Density (air=1): 3.6 Percent Volatile by volume: ND Evaporation Rate (CCl₄ = 1) : >1 Boiling Point: -14.8 ºF (-26.1 ºC ) estimated. Freezing point / melting point: 101 º C pH: NA Solubility in Water: 0.15 Wt% @25 ºC Molecular Weight: 102.03

**Section 10: Stability and Reactivity**
Stability: Stable Conditions to Avoid: Do not store above 54C (130F). Keep away from heat, direct sunlight, open flames, glowing surfaces or sparks. Dropping containers may cause bursting. Materials to Avoid (Incompatibility): Oxidizing agents. Alkali or alkaline earth metals – powdered Al, Zn, Be, etc. Hazardous Decomposition Products: Hydrofluoric acid, carbonyl fluoride, oxides of carbon and additional toxic chemicals may be formed in small amounts. Hazardous Polymerization: None

**Section 11: Toxicological Information**
Results of component toxicity test performed: 1,1,1,2-Tetrafluoroethane (811-97-2): Rat (Inhalation) 4 hr, ALC: 567,000 PPM.

Animal Data: A short duration spray of vapor produced very slight eye irritation. This material is a slight skin irritant, but not a skin sensitizer.

Human experience: OSHA: Human experience: Because of its use in metered-dose inhalers, 1,1,1,2-tetrafluoroethane has been studied in human volunteers with single-breath inhalation and one-hour exposures to concentrations up to 8000 ppm, which caused no respiratory irritation or adverse effects on pulse, blood pressure, lung function, electrocardiogram or on the CNS. Not expected to be hazardous by OSHA criteria. This product does not contain any compounds listed by NTP or IARC or regulated by OSHA as a carcinogen.

Section 12: Ecological Information
Ecological Information: Ecotoxicological Information: This product has no known ecotoxicological effects.
Chemical Fate Information: NIF

Section 13 Disposal Considerations
RCRA 40 CFR 261 Classification: Contents under pressure. Do not puncture, incinerate or crush. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR261.4(b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

Section 14: Transportation Information
US DOT Information: Proper shipping name: Consumer Commodity
Hazard Class: ORM-D
Packaging group: NA
UN Number: NA
IATA: Proper shipping name: 1,1,1,2-Tetrafluoroethane
Hazard Class: 2.2
Packaging group: NA
UN Number: UN3159
Receptacle must meet IATA regulations
IMO: Proper shipping name: Consumer Commodity
Class: ORM-D
UN Number: NA
Packaging group: NA
Marine Pollutant: None
Canadian TDG: Proper shipping name: 1,1,1,2-Tetrafluoroethane

Section 15: Regulatory Information
United States Federal Regulations
SARA: Section 311, 312: Acute: Yes, Chronic: Yes, Fire: No, Reactivity: No. Pressure: Yes
SARA Title III: No
RCRA: ND
TSCA: Ingredients of this product are listed on the EPA/TSCA Inventory of Chemical Substance.
CERCLA: No

**State Regulations**
California Proposition 65: None

**International Regulations**
Canada WHMIS: Listed Proper shipping name: 1,1,1,2-Tetrafluoroethane: compressed gas
Europe EINECS Numbers: 212-377-0

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**Section 16: Other Information**
Label Information: Contents under pressure, non-flammable gas. Inhalation can be Harmful. Avoid contact with eyes and skin. Liquid contact may cause freezing or frostbite.
European Risk and Safety Phrases: ND
European symbols needed: ND
Canadian WHMIS Symbols: ND
HMIS® Hazard Rating: Health: 0; Fire: 0; Physical hazard: 0
(0=least, 1=Slight, 2=Moderate, 3=High, 4=Extreme)

**Abbreviations used in this document**
NE= Not established
NA= Not applicable
NIF= No Information Found
ND= No Data

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**Disclaimer**
Ted Pella, Inc. makes no warranty of any kind regarding the information furnished herein. Users should independently determine the suitability and completeness of information from all sources. While this data is presented in good faith and believed to be accurate, it should be considered only as a supplement to other information gathered by the user. It is the User's responsibility to assure the proper use and disposal of these materials as well as the safety and health of all personnel who may work with or otherwise come in contact with these materials.

MSDS Form 0013F1 V2