ECG Electronics Freezer

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ECG Electronics Freezer
PRODUCT DESCRIPTION: HFC-134a with Anti-stat
PRODUCT CODE: RX100-10
CHEMICAL FAMILY: Hydrofluorocarbons
ACTIVE INGREDIENT(S): 1,1,1,2-Tetrafluoroethane (HFC-134a)

MARKETER
NTE Electronics, Inc.
44 Farrand Street
Bloomfield, NJ 07003
Phone: 973-748-5089

24 HR. EMERGENCY TELEPHONE NUMBERS
CHEMTREC (US Transportation) : (800) 424 - 9300
CANUTEC (Canadian Transportation) : (613) 996 - 6666
Emergency Phone: 1-800-631-1250 8:00 am – 5:00 pm EST

2. HAZARDS IDENTIFICATION

HAZARD DESIGNATION:
"Xn" - Harmful
R20/22 - Harmful by inhalation and if swallowed.

EMERGENCY OVERVIEW:
PHYSICAL APPEARANCE: Clear, Colorless, Volatile Liquid
IMMEDIATE CONCERNS: Warning! High concentrations of vapor can reduce oxygen available for breathing. Harmful if inhaled. May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Very mild (if any) eye/skin irritant.

POTENTIAL HEALTH EFFECTS:
EYES: Liquid contact can cause irritation, which may be severe.
SKIN: Liquid contact could cause frostbite.
INGESTION: Not likely to be ingested.
INHALATION: High concentrations in immediate area can displace oxygen and can cause dizziness, unconsciousness, and possibly death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus.

SIGNS AND SYMPTOMS OF OVEREXPOSURE
EYES: Can cause severe eye irritation.
SKIN: Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold" burn).
INGESTION: Not a likely route of exposure.
INHALATION: High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness).
ACUTE TOXICITY: Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result.
CHRONIC EFFECTS: Not Established
CARCINOGENICITY: Not Established
MUTAGENICITY: None known.
REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: Not yet Determined
TERATOGENIC EFFECTS: Contains Methanol which has been established as a teratogen by inhalation. See Sec.11 for details.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
<th>EINECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (HFC-134a)</td>
<td>98</td>
<td>811-97-2</td>
<td>212-337-0</td>
</tr>
<tr>
<td>Methanol</td>
<td>2</td>
<td>67-56-1</td>
<td>200-659-6</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.
SKIN: In case of cold burns (frostbite) caused by rapidly expanding gas or vaporizing liquids, get medical attention promptly.
INGESTION: Ingestion is unlikely because of the physical properties and is not expected to be hazardous. Do not induce vomiting unless instructed to do so by a physician.
INHALATION: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
NOTES TO PHYSICIAN: Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: Not Applicable
FLAMMABLE LIMITS: None*
AUTOIGNITION TEMPERATURE: > 750°C (1382°F)
FLAMMABLE CLASS: Not Applicable
FLAME PROPAGATION OR BURNING RATE OF SOLIDS: Not Applicable
EXTINGUISHING MEDIA: As appropriate for combustibles in area.
EXPLOSION HAZARDS: This product is not flammable at ambient temperatures and atmospheric pressure. However, this material may become combustible when mixed with air under pressure and exposed to strong ignition sources.
FIRE FIGHTING PROCEDURES: Use water spray to cool containers.
FIRE FIGHTING EQUIPMENT: As in any fire, wear self-contained breathing apparatus pressuredemand, (MSHA/NIOSH approved or equivalent) and full protective gear.
COMMENTS: *Based on ASHRAE Standard 34 with match ignition.

6. ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES: Isolate hazard area. Keep unnecessary and unprotected personnel from entering.
RELEASE NOTES: Spills and releases may have to be reported to Federal and/or local authorities.

7. HANDLING AND STORAGE

HANDLING: Follow standard safety precautions for handling and use of compressed gas cylinders.
STORAGE: Store in a cool place in original container and protect from sunlight.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>SupplierOEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ppm</td>
<td>mg/m3</td>
<td>ppm</td>
</tr>
<tr>
<td>1,1,1,2-Tetrafluoroethane (HFC-134a)</td>
<td>TWA NE</td>
<td>NE</td>
<td>1,000 ppm$^{[1]}$</td>
</tr>
<tr>
<td></td>
<td>TWA S</td>
<td>200 ppm$^{[2]}$</td>
<td>260 mg/m3$^{[2]}$</td>
</tr>
<tr>
<td></td>
<td>STEL 250 ppm</td>
<td>310 mg/m3</td>
<td>250 ppm</td>
</tr>
</tbody>
</table>

OSHA TABLE COMMENTS:
1. * (AEL)=Acceptable Exposure Limit as established by the manufacture
2. S = Skin

ENGINEERING CONTROLS: Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields (or goggles) and a face shield.

SKIN: Skin contact with liquid may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly removed and washed before reuse.

RESPIRATORY: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Boiling Point (°C)</th>
<th>Freezing Point (°C)</th>
<th>Solubility in Water</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (HFC-134a)</td>
<td>-26.4</td>
<td>-101</td>
<td>NEGLIGIBLE</td>
<td>1.21</td>
</tr>
</tbody>
</table>

PHYSICAL STATE: Gas
ODOR: Faint ethereal odor
pH: Neutral
PERCENT VOLATILE: 100 at 20°C (68°F)
VAPOR PRESSURE: 85.8 psi at 21.1°C (70°F)
VAPOR DENSITY: 3.5 (Air=1)
BOILING POINT: -26.2°C (-15.1°F)
FREEZING POINT: -101°C (-149.8°F)
FLASHPOINT AND METHOD: Not Applicable
SOLUBILITY IN WATER: Negligible
EVAPORATION RATE: > 1 (CCL4=1)
SPECIFIC GRAVITY: 1.220 (water=1) at 20°C (68°F)
MOLECULAR WEIGHT: 102

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
STABILITY: Stable.
POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Stable. However, may decompose if heated.
HAZARDOUS DECOMPOSITION PRODUCTS: When exposed to high temperatures or flames this product may form hydrochloric and hydrofluoric acids - possibly carbonyl halides.
INCOMPATIBLE MATERIALS: Chemically active metals: potassium, calcium, powdered aluminum, magnesium and zinc.

11. TOXICOLOGICAL INFORMATION

ACUTE

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ORAL LD₅₀ (rat)</th>
<th>DERMAL LD₅₀ (rabbit)</th>
<th>INHALATION LC₅₀ (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (HFC-134a)</td>
<td>6.2 to 12.98 mg/kg</td>
<td>16 g/kg</td>
<td>&gt; 500000 ppm</td>
</tr>
<tr>
<td>Methanol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EYES:
Notes: Moderately to severely irritating

DERMAL LD₅₀:
Notes: Mildly to moderately irritating.

ORAL LD₅₀:
Notes: Oral Rat LD₅₀: 5628 mg/kg for methanol.

INHALATION LC₅₀:
Notes: Inhalation Rat LC₅₀: 64000 ppm/4H for methanol.

EYE EFFECTS: High vapor concentrations may cause moderate to severe eye irritation.
CHRONIC:
CHRONIC: Chronic NOEL - 10,000 ppm
SUBCHRONIC: Subchronic inhalation (rat) NOEL - 50,000 ppm

CARCINOGENICITY

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>NTP Status</th>
<th>IARC Status</th>
<th>OSHA Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (HFC-134a)</td>
<td>NOT LISTED</td>
<td>NOT LISTED</td>
<td>NOT LISTED</td>
</tr>
<tr>
<td>Methanol</td>
<td>NOT LISTED</td>
<td>NOT LISTED</td>
<td>NOT LISTED</td>
</tr>
</tbody>
</table>

IARC: NOT listed
OSHA: NOT listed

REPRODUCTIVE EFFECTS: Not Established
TERATOGENIC EFFECTS: Teratogenic NOEL (rat and rabbit) - 40,000 ppm
MUTAGENICITY: Collective data indicate non-mutagenic.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: Degradability (BOD): This material is a gas at room temperature; therefore, it is unlikely to remain in water.
DISTRIBUTION: Octanol Water Partition Coefficient: Log P=1.06

13. DISPOSAL CONSIDERATIONS

GENERAL COMMENTS: 1,1,1,2-tetrafluoroethane is subject to U.S. Environmental Protection Agency Clean Air Act Regulations, Section 608 in 40 CFR Part 82 regarding refrigerant recycling.
14. TRANSPORTATION INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)
 PROPER SHIPPING NAME: CONSUMER COMMODITY, ORM-D, DOT-SP 10232
 PRIMARY HAZARD CLASS/DIVISION: 9
 UN/NA NUMBER: N/A
 PACKING GROUP: N/A
 OTHER SHIPPING INFORMATION: Must have a copy of the DOT-SP-10232 with each shipment.

SPECIAL SHIPPING NOTES: Domestic Shipments Only. For International shipments use 1,1,1,2-Tetrafluoroethane, UN3159, 2.2; Pkg. Instr. 200.; Authorization: DOT-SP 10232.; NOTE: Copy of the Exemption is required with all shipments.; HAZARD LABEL: Non-Flammable Gas.; [“LTD QTY of class 2” when <120mL (5 oz)]

ROAD AND RAIL (ADR/RID)
 KEMLER NUMBER: UN3159
 HAZARD CLASS: 2.2
 UN/NA NUMBER: ID8000

AIR (ICAO/IATA)
 SHIPPING NAME: CONSUMER COMMODITY, ORM-D-AIR, DOT-SP 10232
 UN/NA NUMBER: ID8000
 PRIMARY HAZARD CLASS/DIVISION: 9
 PACKING GROUP: N/A
 ERG: 12

VESSEL (IMO/IMDG)
 SHIPPING NAME: 1,1,1,2-Tetrafluoroethane
 UN/NA NUMBER: UN3159
 PRIMARY HAZARD CLASS/DIVISION: 2.2
 LIMITED QUANTITY: 120 ml

15. REGULATORY INFORMATION

UNITED STATES
 SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
 311/312 HAZARD CATEGORIES: IMMEDIATE / PRESSURE
  FIRE: No PRESSURE GENERATING: Yes REACTIVITY: No ACUTE: Yes CHRONIC: No
  313 REPORTABLE INGREDIENTS: Methanol (<1%)

EPCRA SECTION 313 SUPPLIER NOTIFICATION

<table>
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<tr>
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<th>CAS</th>
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</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>2</td>
<td>67-56-1</td>
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302/304 EMERGENCY PLANNING
 EMERGENCY PLAN: Methanol (#67-56-1)

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)
 CERCLA REGULATORY: Releases to air, land, or water which exceed the RQ must be reported to the National Response Center [(800)424-8802] and your Local Emergency Planning Committee. Methanol (#67-56-1)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CERCLA RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>2</td>
<td>1* lbs.</td>
</tr>
</tbody>
</table>

CERCLA RQ: 5000 lbs
**TSCA (TOXIC SUBSTANCE CONTROL ACT)**

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<tr>
<td>1,1,1,2-Tetrafluoroethane (HFC-134a)</td>
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<tr>
<td>Methanol</td>
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**TSCA REGULATORY:** This product is listed on the TSCA Inventory.

**CLEAN AIR ACT**

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**OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)**

29 CFR1910.119—PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: None of the chemicals in this product are considered highly hazardous by OSHA.

**CALIFORNIA PROPOSITION 65:** This product does not contain any chemicals known to the State of California to cause cancer.

**RCRA STATUS:** U154

**OSHA HAZARD COMM. RULE:** Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**CANADA**

**WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):** This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

**WHMIS CLASS:** Class A, Class D2B.

**DOMESTIC SUBSTANCE LIST (INVENTORY):** All components of this product are listed on the Canadian DSL.

**EUROPEAN COMMUNITY**

**EEC LABEL SYMBOL AND CLASSIFICATION**

"Xn" – Harmful
R20/22 - Harmful by inhalation and if swallowed.

**GENERAL COMMENTS:** 1,1,1,2-tetrafluoroethane is subject to U.S. Environmental Agency Clean Air Act Regulations, (40CFR Part 82).

**COMMENTS WARNING:** Contains 1,1,1,2-tetrafluoroethane (HFC-134a), a greenhouse gas which may contribute to global warming.

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16. OTHER INFORMATION

**APPROVED BY:** Pierce A. Pillon
**TITLE:** Chemist

**REVISION SUMMARY:** Revision #: 001 This MSDS replaces the December 20, 2004 MSDS. Any changes in information are as follows: In Section 14 DOT Proper Shipping Name DOT Technical Name DOT Primary Hazard Class/Division Other DOT Shipping Information IMO Proper Shipping Name ADR/RID Item Number AIR Proper Shipping Name Special Shipping Notes IMO Primary Hazard Class/Division IMO UN/NA Number AIR Primary Hazard Class/Division IMDG Note IMDGLQ Not Found IATAERG Not Found In Section 16 NFPA Health
Hamis Rating


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