MATERIAL SAFETY DATA SHEET
Finished Product

Date-Issued: 1/20/2003
MSDS Ref. No: RX100-10
Date-Revised: 10/11/2007
Revision No: 001

ECG Electronics Freezer

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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

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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

Chemical Name	Wt.%	CAS	EINECS
1,1,1,2-Tetrafluoroethane (HFC-134a)	98	811-97-2	212-337-0
Methanol	2	67-56-1	200-659-6

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)							
		EXPOSURE LIMITS					
		OSHA PEL		ACGIH TLV		SupplierOEL	
Chemical Name		**ppm**	**mg/m3**	**ppm**	**mg/m3**	**ppm**	**mg/m3**
1,1,1,2-Tetrafluoroethane (HFC-134a)	**TWA**	NE		NE		1,000 ppm [1]	[1]
Methanol	**TWA**	S 200 ppm [2]	260 mg/m3 [2]	S 200 ppm	262 mg/m3	NL ppm	NL mg/m3
	STEL	250 ppm	310 mg/m3	250 ppm	328 mg/m3	NL ppm	NL
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.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Boiling Point (°C)	Freezing Point (°C)	Solubility in Water	Specific Gravity
1,1,1,2-Tetrafluoroethane (HFC-134a)	-26.4	-101	NEGLIGIBLE	1.21

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

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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.

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11. TOXICOLOGICAL INFORMATION

ACUTE

Chemical Name	ORAL LD_{50} (rat)	DERMAL LD_{50} (rabbit)	INHALATION LC_{50} (rat)
1,1,1,2-Tetrafluoroethane (HFC-134a)			> 500000 ppm
Methanol	6.2 to 12.98 mg/kg	16 g/kg	64000 ppm

EYES:
Notes: Moderately to severely irritating
DERMAL LD_{50}:
Notes: Mildly to moderately irritating.
ORAL LD_{50}:
Notes: Oral Rat LD_{50}: 5628 mg/kg for methanol.
INHALATION LC_{50}: > 500000 ppm, 4-hour
Notes: Inhalation Rat LC_{50}: 64000 ppm/4H for methanol.

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

Chemical Name	NTP Status	IARC Status	OSHA Status
1,1,1,2-Tetrafluoroethane (HFC-134a)	NOT LISTED	NOT LISTED	NOT LISTED
Methanol	NOT LISTED	NOT LISTED	NOT LISTED

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.

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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

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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.

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14. TRANSPORATION 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

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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

Chemical Name	Wt.%	CAS
Methanol	2	67-56-1

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 to your Local Emergency Planning Committee. Methanol (#67-56-1)

Chemical Name	Wt.%	CERCLA RQ
Methanol	2	1* lbs.

CERCLA RQ: 5000 lbs

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
1,1,1,2-Tetrafluoroethane (HFC-134a)	811-97-2
Methanol	67-56-1

TSCA REGULATORY: This product is listed on the TSCA Inventory.

CLEAN AIR ACT

Chemical Name	Wt.%	CAS
1,1,1,2-Tetrafluoroethane (HFC-134a)	98	811-97-2

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

HMIS RATING

NFPA CODES

DATA SOURCES: Code of Federal Regulations (CFR) The Sigma-Aldrich Library of Regulatory and Safety Data OSHA Hazard Communication Standard (29CFR1910.1200) Various Federal, State and Local Regulations

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