

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Envi- Ro - Tech Freezer

PART NUMBER: 6769038

GENERAL USE: Freezing specimens

PRODUCT DESCRIPTION: Clear, colorless highly volatile liquid. Aerosol under pressure.

Thermo
SCIENTIFIC

MANUFACTURER'S NAME (Distributor in the Americas)

Thermo Fisher Scientific

DATE PREPARED: March 14, 2007

SUPERSEDES: October 2, 2003

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ADDRESS (NUMBER, STREET, P.O. BOX)

171 Industry Drive

TELEPHONE NUMBER FOR INFORMATION

(412) 747-4071

(CITY, STATE AND ZIP CODE)

Pittsburgh, PA 15275

COUNTRY

USA

EMERGENCY TELEPHONE NUMBER

ChemTel Inc. 1- (800) 255-3924 Intl. + 01 (813) 248-0585

DISTRIBUTOR'S NAME (Outside the Americas)

Thermo Fisher Scientific, Inc.

ADDRESS (NUMBER, STREET, P.O. BOX)

93/96 Chadwick Road, Astmoor

TELEPHONE NUMBER FOR INFORMATION

(CITY, STATE AND ZIP CODE)

Runcorn, Cheshire WA7 1PR

COUNTRY

United Kingdom

EMERGENCY TELEPHONE NUMBER

ChemTel Inc. 1- (800) 255-3924 Intl. + 01 (813) 248-0585

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	% (by weight)	CAS #	EINECS #	Hazard Symbol	RISK PHRASES Full Text Section 16
1,1,1,2-Tetrafluoroethane	100	811-97-2	212-377-0	NC	Not classified

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Aerosol, non-flammable, high pressure gas; avoid contact and inhalation. Contact with skin may cause freezer burns to skin. Container explosion may occur in fire conditions. Hazard symbol: Not classified Risk Phrases: None

POTENTIAL HEALTH EFFECTS

INHALATION: Exposure to HFC-134a at high concentrations may affect the nervous system and produce an anesthetic effect. Exposure to an oxygen deficient atmosphere may cause headache, dizziness, drowsiness, cyanosis, lack of muscle control followed by collapse.

SKIN: None expected, however, prolonged contact may cause irritation. Direct spray on skin may cause frostbite.

EYES: This product is an eye irritant. Contact with the eyes will cause irritation and possible frostbite.

INGESTION: Not likely a hazard due to volatility.

CARCINOGENICITY

NTP? No IARC MONOGRAPHS? No OSHA REGULATED? No

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SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; if symptoms persist seek medical attention.

SKIN: Not likely a hazard due to volatility; however, if irritation persists or frostbite occurs, seek medical attention.

EYES: Remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open; seek medical attention.

INGESTION: Not likely a hazard due to volatility.

SECTION 5 - FIRE FIGHTING MEASURES

GENERAL HAZARDS: Product is not considered flammable, however, vapors concentrated in a confined or poorly ventilated area can be ignited upon contact with a high energy spark, flame or high intensity source of heat such as welding spark. Products of combustion include compounds of carbon, chlorine, hydrogen and oxygen, including carbon monoxide and phosgene. Toxic gases will form upon combustion.

EXTINGUISHING MEDIA

Carbon dioxide, water, dry chemical, chemical foam

FIRE FIGHTING PROCEDURES

Fire fighters should wear NIOSH / MSHA approved, self - contained breathing apparatus for possible exposure to hydrogen fluoride.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Vapors concentrated in a confined or poorly ventilated area can be ignited upon contact with a high energy spark, flame or high intensity source of heat such as welding spark. Contents under pressure. Do not use or store near heat or ignition sources.

HAZARDOUS COMBUSTION PRODUCTS

In case of a fire, chlorine, hydrogen chloride, hydrogen fluoride, oxides of carbon, and toxic smoke may be produced.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Evacuate and ventilate area. Allow gas to escape to air. Remaining liquid may be absorbed on to an approved absorbent and placed in an approved container for disposal.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container closed when not in use; protect containers from abuse; protect from extreme temperatures, keep away from sources of heat. Do not puncture container. Do not attempt to refill container. Maintain well ventilated work areas to minimize exposure when handling this material.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

HAZARDOUS COMPONENTS	NIOSH				ACGIH			
	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3
1,1,1,2-Tetrafluoroethane	1000				1000			

PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): None required while threshold limits (Section 2) are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.

PROTECTIVE GLOVES: Neoprene or rubber gloves with cuffs.

EYE PROTECTION: Protective eyeglasses or chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN166.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety eyebath nearby

WORK / HYGIENIC PRACTICES: Practice safe workplace habits. Minimize body contact with this, as well as all chemicals in general.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Clear, colorless highly volatile liquid, characteristic odor	VAPOR PRESSURE 85.8 mm Hg @ 20° C
pH Not applicable	SPECIFIC GRAVITY (WATER = 1) 1.220
BOILING POINT / BOILING RANGE - 15.1° F (- 26.2° C)	SOLUBILITY IN WATER Negligible
FLASH POINT Non-flammable	VISCOSITY Like that of water
FLAMMABLE LIMITS LEL: Not applicable UEL: Not applicable	VAPOR DENSITY (AIR = 1) 3.5
AUTOIGNITION TEMPERATURE Not determined	EVAPORATION RATE (Carbon Tetrachloride = 1) > 1

SECTION 10 - STABILITY AND REACTIVITY

STABILITY UNSTABLE: STABLE: X	CONDITIONS TO AVOID: Extreme temperatures, open flames, sparks
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids	
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.	
HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: X	CONDITIONS TO AVOID: None

SECTION 11 - TOXICOLOGICAL INFORMATION

Hazardous Components	CAS # EINECS #	LD50 of Ingredient (Specify Species and Route)	LC50 of Ingredient (Specify Species)
1,1,1,2-Tetrafluoroethane	811-97-2 212-377-0	Not established	1500 gm / m3 / 4H Inhalation - rat

SECTION 12 - ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Based on the chemical composition of this product it is assumed that the mixture can be treated in an acclimatized biological waste treatment plant system in limited quantities. However, such treatment should be evaluated and approved for each specific biological system. None of the ingredients in this mixture are classified as a Marine Pollutant.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: According to the European Waste Catalogue, waste codes are application specific and should be assigned by the user based on the application for which the product is used. Dispose of in accordance with Local, State, and Federal Regulations. This product may produce concentrated hazardous vapors or fumes in a disposal container creating a dangerous environment. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals. Do not flush to sanitary sewer or waterway.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Aerosols	IATA HAZARD CLASS / Pack Group: 2.2
DOT HAZARD CLASS / Pack Group: 2.2	IMDG HAZARD CLASS: 2.2
REFERENCE: 49 CFR 173.115, .306, .307	RID/ADR Dangerous Goods Code: 2.2
UN / NA IDENTIFICATION NUMBER: UN 1950	UN TDG Class / Pack Group: 2.2
LABEL: NONFLAMMABLE GAS	Hazard Identification Number (HIN): None
HAZARD SYMBOLS:	

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EU, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

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SECTION 15 - REGULATORY INFORMATION

TSCA (USA - Toxic Substance Control Act)

All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.

SARA TITLE III (USA - Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories
 Sudden release of pressure

313 Reportable Ingredients:
 None

CERCLA (USA - Comprehensive Response Compensation and Liability Act)

None

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

There are no chemicals present known to the state of California to cause cancer or reproductive toxicity.

CPR (Canadian Controlled Products Regulations)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. WHMIS Classification: A, D2B

IDL (Canadian Ingredient Disclosure List)

Components of this product identified by CAS number and listed on the Canadian Ingredient Disclosure List are shown in Section 2.

DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List)

Components of this product identified by CAS number are listed on the DSL or NDSL and may or may not be listed in Section 2 of this document. Only ingredients classified as "hazardous" are listed in Section 2 unless otherwise indicated.

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

WGK Water Quality Index: 1

RISK PHRASES: Not classified	SYMBOL(S) REQUIRED FOR LABEL Not classified	SAFETY PHRASES: S15 Keep away from heat. S23 Do not breathe vapour.
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SECTION 16 - OTHER INFORMATION

Notes & full R-Phrase text	Not classified
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HMIS HAZARD RATINGS	HEALTH	1	* = Chronic Health Hazard	2 = MODERATE
	FLAMMABILITY	1	0 = INSIGNIFICANT	3 = HIGH
	PHYSICAL HAZARD	0	1 = SLIGHT	4 = EXTREME
	PERSONAL PROTECTIVE EQUIPMENT	B	Safety Glasses, Gloves	

REVISION SUMMARY:

This MSDS has been revised in the following s: Text update

MSDS Prepared by: ChemTel Inc.
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The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.