7/29/08

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MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Envi- Ro - Tech Freezer

PART NUMBER: 230018

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	Page 1 of 4
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

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

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

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:	SYMBOL(S) REQUIRED FOR LABEL	SAFETY PHRASES:
Not classified	Not classified	S15 Keep away from heat. S23 Do not breathe vapour.

SECTION 16 - OTHER INFORMATION

Notes & full R-Phrase text	Not classified

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.
1305 N. Florida Ave.
Tampa, Florida USA 33602
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ChemTel INC.

5/13/08 Recd 5/12/2008

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION AND GENERAL INFORMATION

		NFPA Code
P/N#:	2050-01	H 3
Nomenclature:	Irritant Smoke Tube	F 0
Company Name:	Allegro Industries	R 1
Address	7221 Orangewood Avenue	O 0
	Garden Grove, CA 92841	
	714-899-9855	
	Chemtrac: 800-424-9300	

19805893

2. COMPOSITION

Chemical Name:	Stannic Chloride	
Chemical Family	Tin Chlorides	
Synonyms:	Tin (IV) Chloride, tin tetrachloride, Labavious Fuming Spirit	
Ingredient:	**Stannic Chloride**	**Inert Ingredients**
Molecular Weight	260.5	N/A
Molecular Formula	$SnCl_4$	N/A
CAS Number:	7646-78-8	N/A
Percent:	5-15% (0.7g)	85-95%

3. HAZARDS IDENTIFICATION

Physical Dangers	The vapor is heavier than air.
Chemical Dangers	The substance decomposes on heating producing toxic fumes. Reacts violently with water forming corrosive hydrochloric acid and tin oxide fumes. Reacts with turpentine, alcohols and amines causing fire and explosion hazard. Attacks many metals, some forms of plastics, rubber and coatings. Reacts with moist air to form hydrochloric acid.
Routes of Exposure:	The substance can be absorbed into the body by inhalation of its vapor and aerosol.
Target Organs:	Respiratory System.
Health Hazards:	
Inhalation:	May cause burning sensation. Cough. Labored breathing. Shortness of breath. Sore throat. Wheezing.
Skin Contact:	May cause redness. Skin burns. Pain. Blisters.
Eye Contact:	May cause redness. Pain. Severe deep burns.
Ingestion:	May cause abdominal cramps. Burning sensation. Diarrhea. Vomiting. (See Inhalation).
Chronic Exposure:	The substance may have effects on the respiratory tract , resulting in impaired functions. Hydrogen chloride gas (and the acid fume) is corrosive to all human tissue. Prolonged inhalation of gas concentrations moderately above the TLV can damage t teeth and irritate nasal passages. Inhalation of higher concentrations (above 50 ppm) for a short period of time can cause choking and coughing, and produce severe irritation and damage to the mucous membranes of the upper respiratory tract. The NIOSH-recommended IDLH* level is 100 ppm. HCl can cause severe irritation and tissue burns. (Anhydrous HCl is more dangerous than the acid mist, since it has an additional dehydrating effect on tissues.) If deeply inhaled, pulmonary oedema may occur. The symptoms of lung oedema often do not become manifest until a few hours have passed and they ar aggravated by physical effort. Rest and medical observation is therefore essential.
Acute Exposure	The substance is corrosive to the eyes, the skin and the respiratory tract. Inhalation of fumes and aerosols may cause lung oedema.
Aggravation of Pre-Ex.Cond:	Any medical respiratory condition.

4. FIRST AID MEASURES

Inhalation:	Fresh air, rest. Half-upright position. Artificial respiration if indicated. Refer for medical attention.
Skin Contact:	Rinse and then wash skin with water and soap. Refer for medical attention.
Eye Contact:	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion:	Give plenty of water to drink. Refer for medical attention

5. FIRE FIGHTING MEASURES

Fire Hazards	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Fire Extinguisher	In case of fire in the surroundings: dry sand, powder, carbon dioxide, NO hydrous agents.
Explosion	In case of fire: cool drums, etc., by spraying with water but avoid contact of the substance with water
Flash Point	N/A
Volatile (% by volume)	N/A
Exp. Limits (Vol % in air):	N/A
Auto Ignition Temperature	N/A
Special Fire Fighting Proc:	N/A
PPE for Fire Fighter:	Firefighters should use SCBA units to protect from possible toxic decomposition produc
Notes:	N/A

6. ACCIDENTAL RELEASE MEASURES

Procedure for spill/leak	Neutralize spilled liquid with soda ash or lime. Do NOT wash away into sewer, then remove to safe plac
Waste Disposal	Dispose of in accordance with current laws and regulation:

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7. HANDLING AND STORAGE

Storage:	Store in tight containers in a cool dry place away from light and heat. Keep separate from combustible materials, food and feed stuffs.
Self Life	2 Years
PPE:	Use Safety goggles and gloves if handling in large quantities.
Notes:	None

8. EXPOSURE CONTROLS

PPE:	Safety glasses with side shields should be worn to minimize eye contact. Safety gloves if possible skin contact with HCl and broken glass tubes.
Inhalation	Ventilation, local exhaust, or breathing protection.
Skin:	Protective gloves. Protective clothing.
Eye:	Safety goggles, face shield, or eye protection in combination with breathing protection.
Ingestion:	Do not eat, drink, or smoke during work.
Ventilation:	Local ventilation must be adequate to prevent repeated exposure
Engineering Controls	Persons conducting tests should use a respirator suitable for dust, fumes, mists and acid gases.
Work/Hygienic Practices	Strict hygiene when conducting respirator fit testing, test only respirator types specified in the appropriate protocol.
Exposure Limits:	
Chemical:	Stannic Chloride
TLV (ACGIH TLV):	2 mg/m^3 as tin (ACGIH 1997)
PEL (OSHA PEL):	2 mg/m^3
Control Parameter	N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

Color/Appearance/Odor	Colorless or slightly yellow fuming liquid , with pungent odor
Boiling Point	114°C
Melting Point	-33°C
Specific Gravity (H_2O=1):	N/A
Refractive Index	N/A
Relative Density	2.226 g/cc
Evaporative Rate	N/A
Water Content:	None
Vapor Density(Air-1)	9.0
Vapor Pressure:	20 mm Hg @ 20° C
Solubility in Water	Reaction

10. STABILITY AND REACTIVITY

Conditions to avoid	Do not expose to air until use.
Materials to avoic	Water, bases, ethylene oxide, water alcohols, metals.
Stability	Reacts with water and moisture in the air to form a smoke of HCl and tin oxychlorides.
Hazardous Polymerization:	Will not occur, but HCl may catalyze the polymerization of the other compounds.

11. TOXICOLOGICAL INFORMATION

Health effects	N/A	
Oral LD50:	N/A	Dermal LD50: N/A
Human Lethal Dose:	N/A	
Notes:	N/A	

12. ECOLOGICAL INFORMATION

None Available

13. DISPOSAL CONSIDERATIONS

Do not wash away into sewer

14. TRANSPORT INFORMATION

Proper shipping name	Stannic Chloride
Transport Emergency Card	TEC (R) -80G10
Packing Group:	II
UN Number:	1827
Reportable Quantity	N/A
Packaging:	Airtight. Unbreakable packaging; put breakable packaging into closed unbreakable container.
Notes:	UN Hazard Class: 8 Do not transport with food and feedstuffs

15. REGULATORY INFORMATION

TSCA Registered	Yes	RTECS:	XP8750000
FDA Approved	No	EC #	050-001-00-5
ICSC:	0953		

16. OTHER INFORMATION

None Available

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