

SAFETY DATA SHEET

Creation Date 19-Jan-2015

Revision Date 03-Nov-2014

Revision Number 1

1. Identification

Product Name Shandon Enviro-Tech Freezing Spray

Cat No. : 6769038

Synonyms 1,1,1,2-Tetrafluoroethane; HFC 134a.

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company

Richard Allan Scientific
A Subsidiary of Thermo Fisher Scientific
4481 Campus Drive
Kalamazoo, MI 49008
Tel: (800) 522-7270

Emergency Telephone Number

Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Gases under pressure

Label Elements

Signal Word

Warning

Hazard Statements

Contains gas under pressure; may explode if heated



Precautionary Statements

Storage

Protect from sunlight
Store in a well-ventilated place

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition / information on ingredients

Component	CAS-No	Weight %
1,1,1,2-Tetrafluoroethane	811-97-2	100

4. First-aid measures

General Advice	Immediate medical attention is not required. Show this safety data sheet to the doctor in attendance. No hazards which require special first aid measures.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention. If eye irritation persists, consult a specialist.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Immediately give oxygen if victim turns blue (lips, ears, fingernails). If not breathing, give artificial respiration. Call a physician or Poison Control Center immediately.
Ingestion	Not an expected route of exposure. Do not induce vomiting. Obtain medical attention. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
Most important symptoms/effects Notes to Physician	No information available. Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable Extinguishing Media	No information available
Flash Point Method -	Not applicable No information available
Autoignition Temperature	395 °C / 743 °F
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices. Containers may explode when heated.

Hazardous Combustion Products

Hydrogen fluoride Thermal decomposition can lead to release of irritating gases and vapors

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
1

Instability
0

Physical hazards
N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.
Environmental Precautions	Should not be released into the environment. Prevent further leakage or spillage if safe to do so. See Section 12 for additional ecological information.
Methods for Containment and Clean Up	Provide adequate ventilation. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Handling	Wear personal protective equipment. Ensure adequate ventilation. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothing. Contents under pressure. Keep away from open flames, hot surfaces and sources of ignition. Keep away from acids.
Storage	Store in cool/well-ventilated place. Keep away from heat and sources of ignition. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

<u>Exposure Guidelines</u>	This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
<u>Personal Protective Equipment</u>	
Eye/face Protection	Avoid contact with eyes. Tightly fitting safety goggles.
Skin and body protection	Lightweight protective clothing.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. When using, do not eat, drink or smoke. Keep working clothes separately.

9. Physical and chemical properties

Physical State	Gas
Appearance	Clear
Odor	Petroleum distillates
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	-26.5 °C / -15.7 °F
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	96 psia @ 25 °C

Vapor Density	3.6 @ 25 °C
Relative Density	1.21 (H ₂ O=1)
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	395 °C / 743 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	CH ₂ FCF ₃
Molecular Weight	102.0076

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Heat, flames and sparks. Temperatures above 52°C.
Incompatible Materials	Strong oxidizing agents, Metals
Hazardous Decomposition Products	Hydrogen fluoride, Thermal decomposition can lead to release of irritating gases and vapors
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,1,1,2-Tetrafluoroethane	Not listed	Not listed	1500 g/m ³ (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	No information available
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
1,1,1,2-Tetrafluoroethane	811-97-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects No information available.

Teratogenicity Teratogenic effects have occurred in experimental animals.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and No information available

delayed
Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

No information available.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3159
Proper Shipping Name 1,1,1,2-TETRAFLUOROETHANE
Hazard Class 2.2

TDG

UN-No UN3159
Proper Shipping Name 1,1,1,2-TETRAFLUOROETHANE
Hazard Class 2.2

IATA

UN-No UN3159
Proper Shipping Name 1,1,1,2-TETRAFLUOROETHANE
Hazard Class 2.2

IMDG/IMO

UN-No UN3159
Proper Shipping Name 1,1,1,2-TETRAFLUOROETHANE
Hazard Class 2.2

15. Regulatory information

All of the components in the product are on the following Inventory lists: Australia X = listed China Canada The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC Europe TSCA Korea Philippines Japan

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
1,1,1,2-Tetrafluoroethane	X	X	-	212-377-0	-		X	X	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA

Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class A Compressed gases
D2B Toxic materials



16. Other information

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Regulatory Affairs

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Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS