

SAFETY DATA SHEETS

This SDS packet was issued with item:

070847004

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

070470443 078822700

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 11.01.2024

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Patterson Endo-Ice® Refrigerant Spray

SECTION 1: Identification

Product Identifier

Product Name: Patterson Endo-Ice® Refrigerant Spray

Synonyms: Endo Ice

Product code: 084-7004, 047-0443

Additional information: This safety data sheet is intended for any worker that may potentially be exposed to this product. It does not provide instructions for patient delivery, monitoring or antidotes. Please refer to any supplemental information provided by the manufacturer for patient treatment information.

Recommended Use of the Product and Restriction on Use

Relevant Identified Uses: Utilized in dentistry for pulp testing

Uses Advised Against: Any use other than that recommended above

Reasons Why Uses Advised Against: For dental use only

Manufacturer or Supplier Details

Manufacturer:

United States

Patterson Companies, Inc.
1031 Mendota Heights Road
St. Paul, MN 55120
1-800-328-5536
www.pattersoncompanies.com

Emergency Telephone Number:

United States

CHEMTREC

Within USA and Canada: 1-800-424-9300 (24 hours)

SECTION 2: Hazard(s) Identification

GHS Classification:

Compressed gases

Simple asphyxiant

Label elements

Hazard Pictograms:



Signal Word: Warning

Hazard statements:

H280 Contains gas under pressure; may explode if heated

Simple Asphyxiant May displace oxygen and cause rapid suffocation

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Precautionary Statements:

P410+P403 Protect from sunlight. Store in a well-ventilated place

Hazards Not Otherwise Classified: None

SECTION 3: Composition/Information on Ingredients

Identification	Name	Weight %
CAS Number: 811-97-2	1,1,1,2-Tetrafluoroethane	>80

Additional Information:

The specific chemical identity and/or exact percentages (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of the OSHA Hazard Communication Standard (29 CFR §1910.1200)

SECTION 4: First Aid Measures

Description of First Aid Measures

General Notes:

Show this Safety Data Sheet to the doctor in attendance. Take precautions to ensure your own safety before attempting rescue. Do not enter area without oxygen supplied respirator. Wear appropriate personal protection equipment recommended in Section 8.

After Inhalation:

Remove victim to fresh air, away from source of exposure, and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration or administer CPR. If symptoms develop or persist, seek medical advice/attention.

NOTE: Personal Protective Equipment (PPE), including positive pressure self-contained breathing apparatus may be required to assure the safety of the rescuer.

After Skin Contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

After Eye Contact:

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

DO NOT allow the patient to rub the eyes.

DO NOT allow the patient to tightly shut the eyes.

DO NOT introduce oil or ointment into the eye(s) without medical advice.

DO NOT use hot or tepid water.

After Swallowing:

This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Most Important Symptoms and Effects, Both Acute and Delayed

Acute Symptoms and Effects:

Inhalation may result in breathing difficulties, respiratory distress, altered state of consciousness, fatigue, light headedness, seizures and death from suffocation.

Delayed Symptoms and Effects:

Effects are dependent on exposure (dose, concentration, contact time).

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Immediate Medical Attention and Special Treatment

Specific Treatment:

In case of overexposure to this gas, administer Oxygen and contact emergency personnel immediately.

Notes for the Doctor:

Treat symptomatically.

SECTION 5: Firefighting Measures

Extinguishing Media

Suitable Extinguishing Media:

SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire.

LARGE FIRE: Cool cylinder.

Unsuitable Extinguishing Media:

DO NOT direct water at source of leak or venting safety devices as icing may occur.

Specific Hazards During Fire-Fighting:

May displace oxygen and cause rapid suffocation. Containers may explode when heated. Ruptured cylinders may rocket. Vapors may cause dizziness without warning. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Contact with this material may cause burns, severe injury and/or frostbite. Fire may produce irritating, corrosive and/or toxic gases.

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Closed containers may rupture due to pressure buildup under fire conditions. Vented gas is more dense than air and may collect in pits, basements.

Special Protective Equipment for Firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode. Use shielding to protect against bursting containers.

SPECIAL REQUIREMENTS:

Excessive pressures may develop in a gas cylinder exposed in a fire; this may result in explosion.

Cylinders with pressure relief devices may release their contents as a result of fire and the released gas may constitute a further source of hazard for the fire-fighter.

Cylinders without pressure-relief valves have no provision for controlled release and are therefore more likely to explode if exposed to fire.

Special precautions:

Evacuate non-essential personnel. Ventilate closed spaces before entering. Consider initial evacuation for 500 meters in all directions. If tank/rail car is involved in the fire, ISOLATE for 800 meters in all directions. Fight fire from a maximum distance. Use water spray/fog for cooling fire exposed containers. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles. If this is impossible, withdraw from area and let fire burn. Stand by, at a safe distance, with extinguisher ready for possible re-ignition. Use water spray to reduce vapors or divert vapor cloud drift. Avoid unnecessary run-off of extinguishing media which may cause pollution. Do not handle damaged containers unless specialized to do so.

SECTION 6: Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures:

Evacuate unnecessary personnel. Isolate area until gas has dispersed. Ventilate area. Extinguish any sources of ignition. All equipment used when handling the product must be grounded. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing

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mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

Methods and Material for Containment and Cleaning Up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Avoid breathing dust, mist, fumes, vapors or spray. Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Do not direct water at spill or source of leak. Allow substance to evaporate. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

DO NOT enter confined space where gas may have collected.

Remove leaking cylinders to safe place. Release pressure under safe controlled conditions by opening valve. Do not exert excessive pressure on the valve; do not attempt to operate a damaged valve.

Keep area clear of personnel until gas has dispersed.

No smoking or naked lights within area.

Reference to Other Sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and Storage

Precautions for Safe Handling:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Inspect all containers for damage or leaks before handling. Use only outdoors or in a well ventilated area. Make sure that other controls such as ventilation are in place and functioning properly. Do not carry or transfer this product in an enclosed space. Prevent uncontrolled release. Avoid breathing a simple asphyxiant. Do NOT work alone with a simple asphyxiant. Before entry, especially into confined areas, check atmosphere for sufficient oxygen levels with an appropriate monitor before worker entry and during work. Wear respiratory protection, as required.

DO NOT transfer gas from one cylinder to another. Cylinders in storage should be checked periodically for general condition and leakage. Protect cylinders against physical damage. Move and store cylinders correctly as instructed for their manual handling.

Conditions for Safe Storage, Including Any Incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Store upright. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Containers less than 230 liters should be kept in a fire-resistant storage cabinet or inside storage room rated for fire resistance. Do not store near exits or oxygen cylinders. Consider the use of leak detection and alarm equipment. Store away from incompatible materials (See Section 10).

DO NOT use aluminium or galvanised containers. Segregate full from empty cylinders.

SECTION 8: Exposure Controls/Personal Protection

Only those substances with limit values have been included below.

Occupational Exposure Limit Values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
WEEL	1,1,1,2-Tetrafluoroethane	811-97-2	8-Hour TWA: 4240 mg/m ³ (1000 ppm)

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Biological Limit Values:

No biological exposure limits noted for the ingredient(s).

Information on Monitoring Procedures:

Not determined or not applicable.

Appropriate Engineering Controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Areas where cylinders are stored require good ventilation and, if enclosed, need discrete/controlled exhaust ventilation.

Secondary containment and exhaust gas treatment may be required by certain jurisdictions.

Local exhaust ventilation may be required in work areas.

Consideration should be given to the use of diaphragm or bellows-sealed, soft-seat valves; backflow prevention devices and flow-monitoring or limiting devices.

Automated alerting systems with automatic shutdown of gas-flow may be appropriate and may in fact be mandatory in certain jurisdictions.

Personal Protection Equipment

Eye and Face Protection:

Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly.

Skin and Body Protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

Positive pressure, full face, air-supplied breathing apparatus should be used for work in enclosed spaces if a leak is suspected or the primary containment is to be opened (e.g. for a cylinder change)

Air-supplied breathing apparatus is required where release of gas from primary containment is either suspected or demonstrated.

Respiratory protection in the form of air-supplied or self-contained breathing equipment must be worn if the oxygen concentration in the workplace air is less than 19%.

Cartridge respirators do NOT give protection and may result in rapid suffocation.

General Hygienic Measures:

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When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

SECTION 9: Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Appearance	Colorless Compressed Gas
Odor	Not determined or not available.
Odor threshold	Not determined or not available.
pH	Not determined or not available.
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	Not determined or not available.
Flash point (closed cup)	>93°C
Evaporation rate	Not determined or not available.
Flammability (solid, gas)	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Vapor density	3.6 (air = 1)
Density	Not determined or not available.
Relative density	1.22 (Water = 1)
Solubilities	Immiscible in water
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Dynamic viscosity	Not determined or not available.
Kinematic viscosity	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

SECTION 10: Stability and Reactivity

Reactivity:

Not reactive under recommended handling and storage conditions.

Chemical Stability:

Stable under recommended handling and storage conditions.

Possibility of Hazardous Reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

Conditions to Avoid:

Avoid work in enclosed or confined spaces. Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Incompatible Materials:

Acids and acid fumes, freshly abraded aluminum surfaces (may cause strong exothermic reaction) and chemically active metals: potassium, calcium, powdered aluminum, magnesium, and zinc.

Hazardous Decomposition Products:

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Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological Information

Acute Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Route	Result
1,1,1,2-Tetrafluoroethane	inhalation	LC50 Rat: >567,000 ppmV (4 hr [Vapor])

Skin Corrosion/Irritation

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Serious Eye Damage/Irritation

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Respiratory or Skin Sensitization

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data: No data available.

International Agency for Research on Cancer (IARC): None of the ingredients are listed.

National Toxicology Program (NTP): None of the ingredients are listed.

OSHA Carcinogens: Not applicable

Germ Cell Mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Specific Target Organ Toxicity (Single Exposure)

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

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Specific Target Organ Toxicity (Repeated Exposure)

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data:

No data available.

Substance Data: No data available.

Information on Likely Routes of Exposure:

Inhalation; Skin contact; Eye contact

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics:

Refer to Section 4 of this SDS.

Other Information:

No data available.

SECTION 12: Ecological Information

Acute (Short-Term) Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data:

Name	Result
1,1,1,2-Tetrafluoroethane	Fish LC50 <i>Oncorhynchus mykiss</i> : 450 mg/L (96 hr)
	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : 980 mg/L (48 hr [mobility])
	Aquatic Plants EC50 <i>Raphidocelis subcapitata</i> : >114 mg/L (72 hr [growth rate and biomass, Read-across substance data])

Chronic (Long-Term) Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product Data: No data available.

Substance Data: No data available.

Persistence and Degradability

Product Data: No data available.

Substance Data:

Name	Result
1,1,1,2-Tetrafluoroethane	The substance is not readily biodegradable. 3% degradation in water, measured by O ₂ consumption, after 28 days.

Bioaccumulative Potential

Product Data: No data available.

Substance Data:

Name	Result
1,1,1,2-Tetrafluoroethane	The substance is not expected to bioaccumulate (log Pow: 1.06 at 25 °C).

Mobility in Soil

Product Data: No data available.

Substance Data:

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Name	Result
1,1,1,2-Tetrafluoroethane	The substance is mobile, therefore, there is low potential for adsorption to soil and sediment (Log Koc:1.571).

Results of PBT and vPvB assessment

Product Data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance Data:

PBT assessment:

1,1,1,2-Tetrafluoroethane	The substance is not PBT.
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vPvB assessment:

1,1,1,2-Tetrafluoroethane	The substance is not vPvB.
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Other Adverse Effects: No data available.

SECTION 13: Disposal Considerations

Disposal Methods:


It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory agencies. Dispose of in accordance with all applicable local, regional, state and federal regulations.

Contaminated packages:


Not determined or not applicable.

SECTION 14: Transport Information

United States Transportation of Dangerous Goods (49 CFR DOT)

UN Number	3159
UN Proper Shipping Name	1,1,1,2-Tetrafluoroethane (Refrigerant Gas R 134a)
UN Transport Hazard Class(es)	2.2 
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None
Passenger Air/Rail	75 Kg
Cargo Aircraft Only	150 Kg
Stowage Category	A

International Maritime Dangerous Goods (IMDG)

UN Number	3159
UN Proper Shipping Name	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
UN Transport Hazard Class(es)	2.2 
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None

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EmS Number	F-C, S-V
Stowage Category	A
Excepted Quantities	E1
Limited Quantity	120 mL

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN Number	3159
UN Proper Shipping Name	1,1,1,2-Tetrafluoroethane (Refrigerant Gas R 134a)
UN Transport Hazard Class(es)	2.2 
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None
ERG Code	2L
Excepted Quantities	E1
Passenger and Cargo	75 kg
Cargo Aircraft Only	150 kg

SECTION 15: Regulatory Information

United States Regulations

Inventory Listing (TSCA): All ingredients are listed-active or exempt.

Significant New Use Rule (TSCA Section 5): None of the ingredients are listed.

Export Notification under TSCA Section 12(b): All ingredients are listed or exempt.

SARA Section 302 Extremely Hazardous Substances: None of the ingredients are listed.

SARA Section 313 Toxic Chemicals: None of the ingredients are listed.

CERCLA: None of the ingredients are listed.

RCRA: None of the ingredients are listed.

Section 112(r) of the Clean Air Act (CAA): None of the ingredients are listed.

Massachusetts Right to Know: None of the ingredients are listed.

New Jersey Right to Know: None of the ingredients are listed.

New York Right to Know:

811-97-2	1,1,1,2-Tetrafluoroethane	Listed
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Pennsylvania Right to Know: None of the ingredients are listed.

California Proposition 65: None of the ingredients are listed.

Additional information: Not determined.

SECTION 16: Other Information

Abbreviations and Acronyms: None

Disclaimer:

This product has been classified in accordance with OSHA HCS 2012 guidelines. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation and disposal and is not to be considered 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 materials, unless

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specified in the text. The responsibility to provide a safe workplace remains with the user.

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Revision Notes:

Revision Date	Notes
2024-10-15	Version 2

End of Safety Data Sheet