

# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Product number** 703 - CAS Number 811-97-2  
**Product name** Circuit Chiller  
**Use** Refrigerant; aerosol propellant  
**Effective date** November 30, 2009  
**Manufacturer/packaging** DISTRIBUTORS CHOICE CHEMICALS  
 6112790 Canada Inc.  
 Suite 333 - 6021 Yonge Street  
 Toronto, Ontario  
 M2M 3W2  
 Tel. (416) 703-8446 Fax. (416) 222-7511  
**Emergency contact** **Canutec** (613) 996-6666 collect 24 hours

## 2. Hazards Identification

### Potential health effects

**Skin** Liquid splashes or sprays may cause freeze burns.  
**Inhalation** Harmful by inhalation. May cause neurological disorder.  
**Chronic** May cause cardiac effects.

## 3. Composition / Information on Ingredients

| CAS#     | Chemical Name             | Percentage by Weight | ACGIH TWA | Osha Pel | Osha Stel |
|----------|---------------------------|----------------------|-----------|----------|-----------|
| 811-97-2 | 1,1,1,2-tetrafluoroethane | 99 - 100             | 1000 ppm  | n/a      | n/a       |

## 4. First Aid Measures

**General instructions** If you feel unwell, seek medical advise (show label where possible).  
**First aid procedures**  
**Eye contact** Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention **immediately**.  
**Skin contact** Treat frostbite by immediately immersing affected areas in warm water until the skin has warmed up and turned pink. Obtain medical attention **immediately**.  
**Inhalation** Move victim to fresh air. Give artificial respiration **only** if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing **and** no pulse. Obtain medical attention **immediately**.  
**Ingestion** Not applicable.  
**Note to physicians** Symptomatic. Do not give vasopressor drugs (e.g. Epinephrine, adrenaline, ephedrine, etc.) as there may be danger of producing cardiac arrhythmia.

## 5. Fire Fighting Measures

**Auto ignition temperature** Not applicable.  
**Decomposition temperature** Not applicable.  
**Explosive power** Not available.  
**Extinguishing media** As appropriate for surrounding material/equipment.  
**Fire and explosive hazards** Containers may burst under intense heat.  
**Fire fighting procedures** Water spray should be used to cool containers.  
**Flashpoint** This product does not flash.  
**Flammable limits (lower)** Not applicable.  
**Flammable limits (upper)** Not applicable.  
**Hazardous reactions** May react violently with metals such as sodium, potassium, and barium particularly if they are finely divided.  
**Sensitivity to mechanical impart** Not applicable.



**Sensitivity to static discharge** Not expected to be sensitive to static discharge.

**Rate of burning** Not available.

NOTE: ALSO SEE SECTION 10 – CHEMICAL STABILITY & REACTIVITY INFORMATION

## 6. Accidental Release Measures

**Spills, leaks or releases** Move unprotected personnel upwind of leaking container. Call Emergency Response naming the chemical and the type of container that is leaking. Consider the use of fog-nozzles to control vapors.  
Do not immerse in water. Notify applicable government authority if release is reportable or could adversely affect the environment.

**Deactivating chemicals** Not required.

## 7. Handling and Storage

**Handling** Use only with adequate ventilation and avoid breathing vapors. Secure containers at all times. Leaks should be fixed promptly.

**Storage** Keep containers tightly closed in a cool, well-ventilated area. Avoid high temperatures. Keep containers dry.

**Storage temperature** Ideal storage temperature is 10-27°C. Do not exposed sealed containers to temperatures above 50°C.

## 8. Exposure Controls / Personal Protection

**Preventative measures** Recommendations listed in this section indicate the type of equipment which will provide protection against over exposure to this product. Conditions of use, adequacy, of engineering or other control measures and actual exposures will dictate the need for specific protection devices at your workplace.

**Engineering controls** Local exhaust ventilation recommended.

**Personal Protective Equipment**

- Eye protection** Use chemical safety goggles when there is potential for eye contact.
- Skin protection** Use gloves and protective clothing made of material which has been found by user to be impervious under conditions of use.
- Respiratory protection** A NIOSH/MSHA approved air-purifying respirator equipped with organic vapor cartridges up to ten times the TLV or 1000 ppm, An air-supplied respirator if concentrations are high or unknown

**Exposure Guidelines**

- Product** None established for product.
- Hazardous ingredient(s)** 1,1,1,2-Tetrafluoroethane, ICI Guideline, 1000 ppm internal TWA

## 9. Physical & Chemical Properties

**Alternate name(s)** R134a, HFC 134a, HFT 134a

**Chemical name(s)** 1,1,1,2-Tetrafluoroethane

**Chemical family** Halogenated Hydrocarbon

**Molecular formula** C<sub>2</sub>F<sub>4</sub>H<sub>2</sub>

**Appearance** Colorless

**Physical state** Liquefied gas

**Odor** Faint ethereal odor

**pH** Neutral

**Solubility (water)** Slight

**Solubility (other)** Soluble in chlorinated solvents and alcohol.

**Evaporation rate** Not available

**Boiling point** -26°C

**Melting point** -117°C

**Freezing point** -117°C

**Specific gravity** 1.27

**Vapor pressure (mm Hg at 20°C)** 4268

**Vapor density (Air = 1)** 3.3

## 10. Chemical Stability & Reactivity Information

|                            |   |
|----------------------------|---|
| <b>Chemical stability</b>  | Stable at normal room temperatures.   |
| <b>Conditions to avoid</b> | Keep away from heat, sparks and flames. Avoid high temperatures.  |
| <b>Incompatibilities</b>   | May react violently with metals such as sodium potassium and barium, particularly if they are finely divided.         |
| <b>Polymerization</b>      | Will not occur.   |
| <b>Decomposition</b>       | Thermal decomposition products are toxic and may include Hydrocarbons, organic and acid halides and oxides of carbon. |

## 11. Toxicological Information

|  |   |
|--|---|
| <b>Summary</b>                         | Liquid splashes may cause freeze burns. May cause central nervous system (CNS) depression. May cause cardiac arrhythmia.  |
| <b>Toxicological Data</b>              |   |
| <b>Product</b>                         | None established for this product.  |
| <b>Ingredients</b>                     | 1,1,1,2-Tetrafluoroethane Inhalation LC50 (rat) = 500000 ppm/4H   |
| <b>Potential Health Effects</b>        |   |
| <b>Inhalation</b>                      | High concentrations of product are irritating to the respiratory tract.   |
| <b>Skin contact</b>                    | Liquid splashes or spray may cause freeze burns. Will remove the natural greases resulting in dryness, cracking and dermatitis.   |
| <b>Eye contact</b>                     | The vapor is irritant. Liquid splashes or spray may cause freeze burns.   |
| <b>Ingestion</b>                       | Product is a gas, therefore ingestion is not a likely route of exposure.  |
| <b>Subchronic effect</b>               | This product may sensitize heart muscles causing cardiac arrhythmia, in rare cases, CNS. Depression is characterized by headache, dizziness, drowsiness, nausea, vomiting and inco-ordination. Severe overexposures may lead to coma and possible death due to respiratory failure.   |
| <b>Chronic effect</b>                  | None known.   |
| <b>Carcinogenicity</b>                 | The ingredient(s) of this product is (are) not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program). |
| <b>Teratogenicity and Fetotoxicity</b> | No information is available and no adverse teratogenic / embryotoxic effects are anticipated.   |
| <b>Reproductive effects</b>            | No information is available and no adverse reproductive effects are anticipated.  |
| <b>Mutagenicity</b>                    | There is no evidence of mutagenic potential   |
| <b>Synergistic materials</b>           | Consumption of alcohol increases toxic effects.   |

## 12. Ecological Information

|                                     |   |
|-------------------------------------|---|
| <b>Ecotoxicological information</b> | None known.   |
| <b>Persistence and degradation</b>  | The substance is highly reactive and will not persist in the environment. |

## 13. Disposal Considerations

|                            |                                  |
|----------------------------|----------------------------------|
| <b>General information</b> | RETURN CONTAINER TO MANUFACTURER |
|----------------------------|----------------------------------|

## 14. Transport Information

|  |                           |
|--|---------------------------|
| <b>TDG name</b>                            | 1,1,1,2-Tetrafluoroethane |
| <b>TDG class/division</b>                  | 2.2                       |
| <b>Product identification number (PIN)</b> | UN3159                    |
| <b>Transportation emergency number</b>     | 1-800-561-3636            |
| <b>DOT class</b>                           | 2.2-Non-flammable gas     |

## 15. Regulatory Information

|   |  |  |
|---|--|--|
| <b>Canadian Classification</b>                                | This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this Material Safety Data Sheet (MSDS) contains all of the information required by the CPR. |  |
| <b>Controlled Products Regulations (WHMIS) Classification</b> | A: Compressed gas  |  |
| <b>CEPA/Canadian Domestic Substance List (DSL)</b>            | The substance(s) in this product is/are on the Canadian Domestic Substance List (CEPA DSL)   |  |



**USA Classification**

**OSHA Classification**

|                     |  |
|---------------------|--|
| <b>Physical</b>     | Compressed gases.                              |
| <b>Health</b>       | Not regulated.                                 |
| <b>Target organ</b> | Central nervous system, cardiovascular system. |

**SARA Regulations Section 313 and 40 CFR 372**

This product does not contain any chemicals subject to reporting substances.

**Other Regulations / Legislation which apply to this product**

Not known.

|                              |
|------------------------------|
| <b>16. Other Information</b> |
|------------------------------|

**Disclaimer**

This material safety data sheet is provided as an information resource only. Distributors Choice Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, provincial and local regulations.