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**MSDS: Halocarbon 23**

### PRODUCT INFORMATION

**PRODUCT:** Halocarbon 23  
**TRADE NAME:** Halocarbon 23 or Freon® 23  
**CHEMICAL NAME:** Trifluoromethane or Fluoroform  
**SYNONYMS:** R-23 or Refrigerant 23  
**FORMULA:** CHF<sub>3</sub>  
**CHEMICAL FAMILY:** Fluorinated Hydrocarbon  
**SUPPLIER'S NAME:** MEGS Inc.  
**SUPPLIER'S ADDRESS:** 2675 De Miniac  
Ville St-Laurent, Qc, H4S 1E5  
**EMERGENCY PHONE NUMBER:** (514) 956-7503  
**MOLECULAR WEIGHT:** 70.02  
**PRODUCT USE:** Various  
**PRODUCT IDENTIFICATION UN 1984 NUMBER:**

### HAZARDOUS INGREDIENTS

<b>CHEMICAL ID</b>	<b>CONCENTRATION</b>	<b>CAS #</b>	<b>LD(50)</b>	<b>LC(50)</b>
Halocarbon 23	100%	75-46-7	None	None

### PHYSICAL DATA

**PHYSICAL STATE:** Gas and liquid under pressure  
**APPEARANCE:** Colorless gas and liquid  
**ODOR:** Slight odor  
**ODOR THRESHOLD:** Unknown  
**SPECIFIC GRAVITY (H<sub>2</sub>O = 1):** 1.44  
**VAPOR PRESSURE:** 3750 kPa  
**VAPOR DENSITY (air = 1):** 2.41

**EVAPORATION RATE:** Unknown  
**BOILING POINT:** -82.1°C  
**FREEZING POINT:** -155°C  
**pH:** Unknown  
**GAS DENSITY:** 2.94 kg/m<sup>3</sup> @ 15°C, 101.3 kPa  
**COEFFICIENT OF WATER/OIL @ 25°C, Bunsen Coefficient = 0.319**  
**DISTRIBUTION:**

### **FIRE OR EXPLOSION HAZARD**

**CONDITIONS OF FLAMMABILITY:** Nonflammable gas  
**MEANS OF EXTINCTION:** Nonflammable gas  
**FLASHPOINT AND METHOD OF DETERMINATION:** Nonflammable gas  
**UPPER EXPLOSION LIMIT (% BY VOL):** Nonflammable gas  
**LOWER EXPLOSION LIMIT (% BY VOL):** Nonflammable gas  
**AUTO-IGNITION TEMPERATURE:** Nonflammable gas  
**FLAMMABILITY CLASSIFICATION:** Nonflammable gas  
**HAZARDOUS COMBUSTION PRODUCTS:** Nonflammable gas  
**EXPLOSION DATA:** Nonflammable gas  
**SENSITIVITY TO STATIC DISCHARGE:** None

### **REACTIVITY DATA**

**CHEMICAL STABILITY:** Stable  
**INCOMPATIBLE MATERIALS:** None  
**CONDITIONS OF REACTIVITY:** Non-reactive  
**HAZARDOUS DECOMPOSITION PRODUCTS:** Hydrogen fluoride and other toxic fluorides

### **TOXICOLOGICAL PROPERTIES**

**ROUTES OF ENTRY:**

**SKIN CONTACT:** None

**SKIN ABSORPTION:** None

**EYE:** None

**INHALATION:** High concentrations of Halocarbon 23 so as to exclude an adequate supply of oxygen to the lungs causes dizziness, deeper breathing due to air hunger, possible nausea and eventual unconsciousness.

**INGESTION:** None

**ACUTE OVER EXPOSURE EFFECTS:** Halocarbon 23 is inactive biologically and essentially nontoxic; therefore, the major property is the exclusion of an adequate supply of oxygen to the lungs.

**CHRONIC OVER EXPOSURE EFFECTS:** None reported

**EXPOSURE LIMITS:** No TWA is established. It should be considered a simple asphyxiant. Oxygen levels should be maintained than 18 molar percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg. (ACGIH 1995-1996)

**IRRITANCY OF PRODUCT:** None

**SENSITIZATION TO MATERIAL:** None

**CARCINOGENICITY, REPRODUCTIVE EFFECTS:** None

**TERATOGENICITY, MUTAGENICITY:** Yes, in very high concentrations inhaled by drosophila melanogaster (Mediterranean fruit fly).

**TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** Unknown

## **PREVENTIVE MEASURES**

**PERSONAL PROTECTIVE EQUIPMENT:** Gloves of any materials but natural rubber. Safety goggles or safety glasses. Safety shoes.

**SPECIFIC ENGINEERING CONTROLS:** Halocarbon 23 is noncorrosive and may be used with any common structural material. Silver and copper bearing alloys can act as catalysts for the decomposition of halocarbon 23 at high temperatures. Alloys containing more than 2% magnesium should not be used if water is present.

**LEAK AND SPILL PROCEDURES:** EVACUATE ALL PERSONNEL FROM AFFECTED AREA.

Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is on container or container valve, contact the closest MEGS location.

**WASTE DISPOSAL:** Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to MEGS for proper disposal. For

emergency disposal, contact the closest MEGS location.

**HANDLING PROCEDURES AND EQUIPMENT:** USE ONLY IN WELL-VENTILATED AREAS.

Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Do not tamper with (valve) safety device. Close valve after each use and when empty.

**STORAGE REQUIREMENTS:** Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52°C. Cylinders must be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time.

**TDG CLASSIFICATION:** 2.2

**WHMIS CLASSIFICATION:** A

**SPECIAL SHIPPING INFORMATION:** Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

<b>FIRST AID MEASURES</b>
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**SPECIFIC FIRST AID PROCEDURES:** PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO HALOCARBON 23. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

**INHALATION:** Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

**EYE CONTACT:** Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes

**SKIN CONTACT:** Frostbite: FLUSH AFFECTED AREAS WITH LUKEWARM WATER. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing.

<b>PREPARATION INFORMATION</b>
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**PREPARED BY:** Safety Department

**DATE PREPARED:** 09/01/1999

**LAST REVISION DATE:** 11/01/2010

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