ARCTON®22
SAFETY DATA SHEET

Mexichem FLUOR

SECTION 1 - IDENTIFICATION

Product identifier used on the label:	ARCTON®22
Other means of identification:	Fluorocarbon 22, R-22, FC-22, HCFC-22
Recommended use of the chemical and restrictions on use:	Refrigerant

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:

United States, Mexico & South America
Mexichem Fluor Inc.
4990B ICI Rd. / P.O. Box 30
St. Gabriel, LA 70776
800-424-5532

Canada
Mexichem Fluor Canada Inc.
5000 Yonge Street, Suite 1901
Toronto, Ontario, M2N 7E9
800-275-5532 Ext. 384 or 383

Emergency telephone numbers:

Medical:	**800-298-9164 or 303-389-1418**
Transportation:	**In US, Canada, or South America, call Chemtrec @ 800-424-9300 or 703-527-3887 (call collect)** **In Mexico, call SETIQ @ 01-800-00-214-00 (call free from any place in Mexico) or 01-55-59-15-88 (in Mexico City)**

SECTION 2 – HAZARDS IDENTIFICATION

Classification of the chemical:	Gases Under Pressure - Liquefied Gas
Signal word:	Warning
Hazard statement(s):	Contains gas under pressure; may explode if heated. Harms public health and the environment by destroying ozone in the upper atmosphere. May displace oxygen and cause rapid suffocation.
Precautionary statement(s):	Protect from sunlight. Store in a well-ventilated place.
Pictogram(s):	
Hazards not otherwise classified:	May cause frostbite. Exposure to high concentrations may cause an abnormal heart rhythm which can be fatal. Very high atmospheric concentrations may cause anesthetic effects such as dizziness, drowsiness, headaches, and unconsciousness.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name, Common Name, and Synonyms	CAS #	Concentration
Chlorodifluoromethane (Arcton®22, Fluorocarbon 22, R-22, FC-22, HCFC-22)	75-45-6	100%

SECTION 4 – FIRST AID MEASURES

Skin:	Immediately wash with plenty of warm water (do not rub). Thaw affected area with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in case of freeze burns. If symptoms (irritation or blistering) develop, get medical attention.
Eyes:	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Hold eyelids open during flushing. Have eyes examined and treated by medical personnel.
Inhalation:	Move victim to fresh air. Keep warm and at rest. If breathing is labored, give oxygen. If only breathing has stopped, give artificial respiration with a pocket mask equipped with a one-way valve to prevent exposure to product or body fluids. If breathing has stopped AND there is no pulse, give cardiopulmonary resuscitation (CPR). Get immediate medical attention.
Ingestion:	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. In case of frostbite, immediately rinse lips and mouth with tepid water for at least 15 minutes. Obtain medical attention promptly.
Note to physician:	Provide symptomatic and supportive therapy, as indicated. Administration of epinephrine or similar sympathomimetic drugs should be with special caution and only in situations of emergency life support as cardiac arrhythmia may result.

SECTION 5 - FIRE-FIGHTING MEASURES

Fire and explosion hazards:	HCFC-22 is not flammable in air under ambient conditions of temperature and pressure. Certain mixtures of HCFC-22 and air when under pressure may be flammable. Certain mixtures of HCFC-22 and chlorine may be flammable or reactive under certain conditions. Containers may burst under intense heat. Ruptured cylinders may rocket or fragment. Heavy vapor may suffocate.
Specific hazards arising from the chemical:	During a fire the product can form toxic and corrosive gases such as hydrogen fluoride and hydrogen chloride.
Fire-fighting procedures:	Move containers from fire area, if it can be done without risk. Fight fire from a protected location to shield personnel from venting or ruptured containers.

Suitable extinguishing media:	As appropriate for surrounding materials/equipment. Water spray should be used to cool containers.
Unsuitable extinguishing media:	None known
Special protective equipment and precautions for fire-fighters:	Use self-contained breathing apparatus with a full-face piece and special protective clothing.
Sensitivity to mechanical impact:	Not applicable
Sensitivity to static discharge:	Not expected to be sensitive to static discharge.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:	This product is a liquefied gas, which exits the container at temperatures capable of causing freeze burns (frostbite). Precautions should take into account the severity of the leak or spill. Move unprotected personnel upwind of leaking container. Ventilate the spill area. Use recommended personal protection and shut off the leak, if without risk. If possible, elevate leak position to highest point of container (should leak gas, not liquid). Water should never be put on leak nor should cylinder be immersed.
Methods and materials for containment and cleaning up:	If possible, dike and contain spillage. Prevent liquid from entering sewers, sumps, or pit areas since vapor is heavier than air and can create a suffocating atmosphere. Capture material for recycle or destruction if suitable equipment is available. Notify applicable government authority if release is reportable or could adversely affect the environment.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling:	Wear appropriate personal protective equipment. A safety shower and eyewash station should be nearby and ready for use. This product is a liquefied gas, which exits the container at temperatures capable of causing freeze burns (frostbite). Ensure personnel are trained in handling and storing cylinders. Secure containers at all times. Keep containers closed when not in use. Ensure there is adequate ventilation or use proper respiratory protection in poorly ventilated or confined areas. Avoid causing and inhaling high concentrations of vapor. Atmospheric levels should be controlled to below the occupational exposure limit and kept as low as practicable. Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres. Do not put mixtures of HCFC-22 with air or oxygen under pressure; do not use such mixtures for leak or pressure testing. Do not heat containers. Liquid transfers between containers may generate static electricity. Ensure adequate grounding. Avoid trapping liquid between closed valves or overfilling containers as high pressures can develop with an increase in temperature. Avoid contact with flames or very hot surfaces.

Conditions for safe storage, including any incompatibilities:	Keep containers tightly closed, in a cool, well-ventilated place. Store at temperature not exceeding 125°F (52°C.). Keep containers dry. Keep away from open flames, hot surfaces, welding operations, and other heat sources. Keep away from finely divided metals such as aluminum, zinc, magnesium, and alloys containing more than 2% magnesium. Can react violently if in contact with alkali metals and alkaline earth metals such as sodium, potassium, or barium.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Permissible Exposure Limit (PEL):	Not established
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV):	1000 ppm 8-hour TWA
American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Level (WEEL):	Not established
Mexichem Fluor Guideline:	1000 ppm 8-hour TWA
Appropriate engineering controls:	Use ventilation to maintain safe levels. Where appropriate engineering controls are not in place or are inadequate, wear suitable respiratory equipment.
Eye Protection:	Use chemical safety goggles or safety glasses and a face shield when there is potential for eye contact.
Skin Protection:	Take all precautions to prevent skin contact. Use gloves and protective clothing made of material that has been found by user to be impervious under conditions of use to prevent the skin from becoming frozen from contact with liquid. User should verify impermeability under normal conditions of use prior to general use. Additional protection such as an apron, arm covers, or full body suit may be needed depending on conditions of use.
Respiratory Protection:	Not normally needed if controls are adequate. If needed, use NIOSH/MSHA approved respirator for organic vapors. For high concentrations and oxygen-deficient atmospheres, use positive pressure air-supplied respirator.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless liquefied gas
Odor:	Faint ether-like
Odor threshold:	Not available
pH:	Not applicable
Melting point/freezing point:	-160°C (-256.0°F)
Boiling point:	-40.8°C (-41.4°F)
Flash point:	Does not flash
Evaporation rate:	Not available
Flammability (solid, gas):	Non flammable
Upper/lower flammability/explosive limits:	Not applicable
Vapor pressure:	6,805 mm Hg at 20°C
Vapor density:	3.03 (air = 1)
Specific gravity (relative density):	1.21 at 20°C
Solubility(ies):	Slightly soluble in water, soluble in alcohols, chlorinated solvents, hydrocarbon solvents
Partition coefficient: n-octanol/water:	1.13
Auto-ignition temperature:	632°C (1170°F)
Decomposition temperature:	Not available

SECTION 10 - STABILITY AND REACTIVITY

Reactivity:	Reacts with finely divided metals such as aluminum, zinc, magnesium, and alloys containing more than 2% magnesium. Can react violently if in contact with alkali metals and alkaline earth metals such as sodium, potassium, or barium.
Chemical stability:	Stable under normal conditions
Possibility of hazardous reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Keep away from heat, sparks, and flame. Avoid high temperatures.
Incompatible materials:	Finely divided metals such as aluminum, zinc, magnesium, and alloys containing more than 2% magnesium. Alkali metals and alkaline earth metals such as sodium, potassium, or barium.
Hazardous decomposition products:	Hydrogen fluoride by thermal decomposition and hydrolysis. Oxides of carbon and fluoride may be produced by thermal decomposition.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure:	Inhalation, eye, and skin contact
Symptoms related to the physical, chemical and toxicological characteristics: Delayed and immediate effects and also chronic effects from short- and long-term exposure:	**Inhalation:** Vapor is heavier than air. May displace oxygen and cause rapid suffocation. Exposure to high concentrations may cause an abnormal heart rhythm (arrhythmia) under stressful conditions which can be fatal. Very high atmospheric concentrations may cause anesthetic effects such as dizziness, drowsiness, headaches, and unconsciousness. **Ingestion:** Liquid will cause freeze burns. **Eye contact:** Liquid splashes or spray may cause freeze burns. **Skin contact:** Liquid splashes or spray may cause freeze burns. **Other effects:** None anticipated.
Numerical measures of toxicity:	LC50: 4 hr. (rat) = 220,000 ppm LD50: Not applicable
Animal test data:	Acute inhalation exposures at high concentrations of HCFC-22 have been shown to cause central nervous system depression in laboratory animals. Cardiac arrhythmias were seen in dogs exposed to 50,000 ppm HCFC-22 for 5 minutes, when followed by an injection of epinephrine. No target organ effects were seen in lifetime inhalation studies of rats and mice exposed up to 50,000 ppm HCFC-22. HCFC-22 was generally not genotoxic when tested in a variety of *in vitro* and *in vivo* tests. A lifetime inhalation study in animals has shown that high exposures of HCFC-22 (50,000 ppm) produced a small excess of salivary gland tumors in male rats. Female rats and both sexes of mice showed no such response. The no effect level was 10,000 ppm. This information does not suggest that HCFC-22 represents a carcinogenic hazard to humans under normal conditions of handling and use. Studies in animals have shown that high exposures of HCFC-22 produce a low incidence of teratogenic effects in rats, but not in rabbits at the same exposure level (50,000 ppm). The low incidence of this effect in rats, the high exposure level associated with its occurrence and the absence of an effect in rabbits, leads to the conclusion that these results are not of significance when considering the health of humans occupationally exposed to levels of HCFC-22 at or below the occupational exposure limit.
Carcinogenicity:	Not classified as carcinogenic by NTP, IARC, ACGIH, or OSHA.
Teratogenicity, mutagenicity, other reproductive effects:	See animal test data above.

Toxicologically synergistic products:	None known. Note that administration of epinephrine or similar sympathomimetic drugs following exposure may result in cardiac arrhythmia.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	Daphnia 48 hour EC50: 433 mg/l Zebra fish 96 hour LC50: 777 mg/l
Persistence and degradability:	This product is highly volatile and has relatively low water solubility. It will rapidly evaporate from water. Decomposes comparatively rapidly in the lower atmosphere (troposphere). Atmospheric lifetime is 12 years. Products of decomposition will be highly dispersed and hence will have a very low concentration. Practically non-biodegradable.
Bioaccumulative potential:	Low given its Log K_{ow} = 1.13
Mobility in soil:	Expected to be mobile in soil.
Other adverse effects:	Not a significant contributor to photochemical smog and is not considered to be a VOC. Ozone depletion potential (ODP) is 0.055 measured against a standard ODP of 1 for CFC-11 (as defined by UNEP).

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal Method:	Discarded product is not a hazardous waste under RCRA, 40 CFR 261. However, HCFC-22 should be recycled or reclaimed whenever possible.
Container Disposal:	For disposable (DOT 39) cylinders only. Do not distribute, make available, furnish, or reuse container when emptied of the original product. Open valve to remove pressure in the cylinder. Then puncture, drill, crush, or otherwise destroy empty cylinder and dispose of in a facility permitted for nonhazardous waste. Return all other containers to supplier.
Refrigeration Application:	Subject to "no venting" regulations of Section 608 of the Clean Air Act during the service or disposal of equipment.

SECTION 14 - TRANSPORT INFORMATION

UN number (DOT, TDG, IMDG, IATA):	UN 1018
UN proper shipping name (DOT, TDG, IMDG, IATA):	Chlorodifluoromethane ***or*** Refrigerant gas R 22
Hazard class (DOT, TDG, IMDG, IATA):	2.2
Packing group (DOT, TDG, IMDG, IATA):	None

Hazardous substance (RQ):	None
Environmental hazards (e.g., Marine pollutant):	Not a Marine Pollutant
Placard/label:	Non-flammable gas
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):	Not available
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises:	Consult applicable regulations (*e.g.*, DOT, TDG, IATA, IMDG) for special precautions applicable to transport outside of user's premises. Within user's premises transport in upright, closed, and secured containers.

SECTION 15 - REGULATORY INFORMATION

USA Classification:	This material is classified as hazardous under OSHA regulations (29 CFR 1910.1200).
TSCA (Toxic Substances Control Act) Regulations, 40 CFR 710:	This product is listed on the TSCA Chemical Substances Inventory.
CERCLA and SARA Regulations:	40 CFR 372: This product contains the following toxic chemicals subject to reporting requirements of SARA Section 313: Chlorodifluoromethane (CAS 75-45-6) 40 CFR 355: This product does not contain any "extremely hazardous chemical" subject to the requirements of SARA Section 312. 40 CFR 370: Hazardous properties as defined under the Hazard Communication Standard (29 CFR 1910.1200): Immediate (acute) health hazard, Sudden release of pressure. Actions may be necessary under SARA Sections 311 and 312. Consult regulations for applicability.
Ozone Protection and 40 CFR 82:	Contains chlorodifluoromethane, a substance which harms public health and environment by destroying ozone in the upper atmosphere.
Other regulations/legislation:	Subject to "no venting" regulations of Section 608 of the Clean Air Act during the service or disposal of equipment.

Canadian Classification:	This product has been classified according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains all the information required by the CPR.
Controlled Products Regulations (WHMIS Classification):	Class A: Compressed Gas
CEPA/Canadian Domestic Substances List (DSL):	The substance in this product is on the Canadian Domestic Substance List (CEPA DSL).
Other regulations/legislation:	This product contains the following substances subject to the CEPA Ozone Depleting Substances Regulations, 1998: chlorodifluoromethane, group 9 controlled substance, Ozone Depletion Potential (ODP) = 0.055.

SECTION 16 - OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Prepared by:	Joel R. Hall, Mexichem Fluor Inc.
Telephone number of preparer:	225-642-0094
Date of preparation:	March 16, 2015
Version:	1

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