

## SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Name

**Arcton™ 22**

#### Manufacturer

Mexichem UK Limited  
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WA7 4QX  
United Kingdom  
Tel: +44(0) 1928 518880  
E-Mail: info@mexichem.com

#### Emergency Phone No.

IN AN EMERGENCY DIAL 999 (UK Only)  
For specialist advice in an emergency telephone +44(0) 1928 572000

#### Use

refrigerant , chemical feedstock

### 2. HAZARDS IDENTIFICATION

High exposures may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.  
Liquid splashes or spray may cause freeze burns to skin and eyes.  
Dangerous for the ozone layer.

#### 2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008 (CLP)

Gases under pressure - liquefied gas  
Hazardous for the ozone layer

#### 2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP)

#### Hazard Statement(s)

H280: Contains gas under pressure; may explode if heated.  
EUH059: Hazardous to the ozone layer.

#### Signal Word(s)

DANGER

#### Hazard Pictogram(s)



GHS04

#### Precautionary Statement(s)

P410+P403: Protect from sunlight. Store in a well-ventilated place.  
P273: Avoid release to the environment.  
P501: Disposal should be in accordance with local, state or national legislation.

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Alternative names Chlorodifluoromethane (HCFC 22)

#### HAZARDOUS INGREDIENT(S)

Hazardous Ingredient(s)	%(w/w)	CAS No.	EC No.	Hazard symbol(s) and hazard statement(s)
Chlorodifluoromethane (HCFC 22)	100	000075-45-6	200-871-9	GHS04; H280, EUH059

### 4. FIRST AID MEASURES



The first aid advice given for skin contact, eye contact, and ingestion is applicable following exposures to the liquid or spray. See also section 11.

Inhalation	Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.
Skin Contact	Thaw affected areas with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in the case of freeze burns. After contact with skin, wash immediately with plenty of warm water. If irritation or blistering occur obtain medical attention.
Eye Contact	Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain immediate medical attention.
Ingestion	Unlikely route of exposure. Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain immediate medical attention.
Further Medical Treatment	Symptomatic treatment and supportive therapy as indicated. Adrenaline and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest.

### 5. FIREFIGHTING MEASURES

General	<p>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. Mixtures of HCFC 22 and air under pressure should be avoided.</p> <p>Certain mixtures of HCFCs and chlorine may be flammable or reactive under certain conditions.</p> <p>Thermal decomposition will evolve very toxic and corrosive vapours. (hydrogen chloride, hydrogen fluoride)</p> <p>Containers may burst if overheated.</p>
Extinguishing media	<p>As appropriate for surrounding fire.</p> <p>Keep fire exposed containers cool by spraying with water.</p>
Advice for firefighters	A self contained breathing apparatus and full protective clothing must be worn in fire conditions. See Also Section 8

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### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Ensure suitable personal protection (including respiratory protection) during removal of spillages. See Also Section 8
Environmental precautions	Prevent liquid entering watercourses and sewers.
Methods and materials for containment and cleaning up	Provided it is safe to do so, isolate the source of the leak. Allow small spillages to evaporate provided there is adequate ventilation. Large spillages: Ventilate area. Contain spillages with sand, earth or any suitable adsorbent material. Prevent liquid entering sewers, basements and workpits; vapour may create suffocating atmosphere.
Reference to other sections	8,13

### 7. HANDLING AND STORAGE

Precautions for safe handling	Avoid inhalation of high concentrations of vapours. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Atmospheric concentrations well below the occupational exposure limit can be achieved by good occupational hygiene practice. The vapour is heavier than air, high concentrations may be produced at low levels where general ventilation is poor, in such cases provide adequate ventilation or wear suitable respiratory protective equipment with positive air supply. Avoid contact with naked flames and hot surfaces as corrosive and very toxic decomposition products can be formed. Avoid contact between the liquid and skin and eyes.
Process Hazards	Liquid refrigerant transfers between refrigerant containers and to and from systems can result in static generation. Ensure adequate earthing. Certain mixtures of HCFCs and chlorine may be flammable or reactive under certain conditions. Care must be taken to mitigate the risk of developing high pressures in systems caused by a temperature rise when liquid is trapped between closed valves or in cases where containers have been overfilled.
Conditions for safe storage, including any incompatibilities	Keep in a well ventilated place away from fire risk and avoid sources of heat such as electric or steam radiators. Avoid storing near to the intake of air conditioning units, boiler units and open drains.
Specific use	refrigerant , chemical feedstock

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Appropriate engineering controls	Ensure adequate ventilation.
Personal protection equipment	Wear suitable protective clothing and eye/face protection. Wear thermal insulating gloves and a face shield when handling liquified gases. In cases of insufficient ventilation, where exposure to high concentrations of vapour is possible, suitable respiratory protective equipment with positive air supply should be used.



Eye Protection



Gloves

### Occupational Exposure Limits

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Occupational Exposure Limits	CAS No.	LTEL (8 hr TWA ppm)	LTEL 8 hr TWA mg/m <sup>3</sup>	STEL (ppm)	STEL mg/m <sup>3</sup>	Note
Chlorodifluoromethane (HCFC 22)	000075-45-6	1000	3590	-	-	WEL

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	liquefied gas
Colour.	colourless
Odour	slight ethereal
Solubility (Water)	slightly soluble
Solubility (Other)	Soluble in: alcohols , chlorinated solvents , hydrocarbon solvents
Boiling Point (° C)	-40.8
Melting Point (° C)	-160
Vapour Density (Air=1)	3.03
Vapour Pressure (mm Hg)	6805 at 20 ° C
Specific Gravity	1.21

## 10. STABILITY AND REACTIVITY

Chemical stability	Stable
Possibility of hazardous reactions	Certain mixtures of HCFCs and chlorine may be flammable or reactive under certain conditions. Can react violently if in contact with alkali metals and alkaline earth metals - sodium , potassium , barium
Incompatible materials	finely divided metals , magnesium and alloys containing more than 2% magnesium
Hazardous decomposition products	hydrogen chloride , hydrogen fluoride by thermal decomposition and hydrolysis.

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity / Ingestion	Highly unlikely - but should this occur freeze burns will result.
Inhalation / Acute toxicity	Low acute toxicity. LC50 >197,400 ppm High exposures may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.
Acute toxicity / Skin Contact	Unlikely to be hazardous by skin absorption.
Skin corrosion/irritation	Liquid splashes or spray may cause freeze burns.
Serious eye damage/irritation	Liquid splashes or spray may cause freeze burns.
Respiratory irritation	Non-irritant.
Sensitisation	Not sensitising
Repeated dose toxicity	In a 2 year study no adverse effects were observed in rats exposed up to 10,000 ppm.
Mutagenicity	The weight of evidence suggests that HCFC 22 is not mutagenic.

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Carcinogenicity	A lifetime inhalation study in animals has shown that high exposures of HCFC 22 (50000ppm) produce a small excess of salivary gland tumours in male rats. Female rats and both sexes of mice showed no such response. The no effect level was 10000ppm. This information does not suggest that HCFC 22 represents a carcinogenic hazard to humans under normal conditions of handling and use.
Reproductive toxicity	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 (49000ppm). 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.
Specific target organ toxicity — single exposure	Not classified.
Specific target organ toxicity — repeated exposure	Not classified.
Aspiration hazard	Not applicable

## 12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution	Gas.
Persistence and Degradation	Decomposed 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. Does not influence photochemical smog (i.e. is not a VOC under the terms of the UNECE agreement). Has a Global Warming Potential (GWP) of 1780 (relative to a value of 1 for carbon dioxide at 100 years). Ozone depleting potential (ODP) is 0.055 measured against a standard ODP of 1 for CFC11 (as defined by UNEP). Substance is controlled under the Montreal Protocol (1992 revision).
Toxicity	Low toxicity to aquatic organisms. LC50 (96 hour) (Zebra fish) = 777 mg/l EC50 (Daphnia magna) (48 hour) = 433 mg/l EC50 (algae) (72 hours) = 377 mg/l (calculated)
Effect on Effluent Treatment	Discharges of the product will enter the atmosphere and will not result in long term aqueous contamination.
Bioaccumulative potential	Not applicable.
Mobility in soil	Not applicable.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.

## 13. DISPOSAL CONSIDERATIONS

Regulatory Information	Disposal should be in accordance with local, state or national legislation.
Waste treatment methods	Best to recover and recycle. If this is not possible, destruction is to be in an approved facility which is equipped to absorb and neutralise acid gases and other toxic processing products.

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### 14. TRANSPORT INFORMATION

Hazard label(s)



Road/Rail	
UN No.	1018
ADR/RID Class	2.2
ADR/RID Proper Shipping Name	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)

SEA	
IMDG Class	2.2
Marine Pollutant	Not classified as a Marine Pollutant

AIR	
ICAO/IATA Class	2.2

### 15. REGULATORY INFORMATION

#### European Regulations

EC Classification	Gases under pressure - Liquefied gas Hazardous for the ozone layer
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Special Restrictions: Regulation EC2037/2000 on substances that deplete the ozone layer.

### 16. OTHER INFORMATION

This data sheet was prepared in accordance with Regulation (EC) No. 1907/2006.

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#### Glossary

WEL: Workplace Exposure Limit (UK HSE EH40)  
 COM: The company aims to control exposure in its workplace to this limit  
 TLV: The company aims to control exposure in its workplace to the ACGIH limit  
 TLV-C: The company aims to control exposure in its workplace to the ACGIH Ceiling limit  
 MAK: The company aims to control exposure in its workplace to the German limit  
 Sk: Can be absorbed through skin  
 Sen: Capable of causing respiratory sensitisation  
 Bmgv: Biological monitoring guidance value (UK HSE EH40)

#### Hazard Statement(s)

H280: Contains gas under pressure; may explode if heated.  
 EUH059: Hazardous to the ozone layer.

**The following sections contain revisions or new statements: 1,2,16**