

HCFC-22

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

- 1.1 Identification of the preparation: HCFC-22
 Synonyms : chlorodifluoromethane
 Formula : CHClF_2
 CAS-No : 75-45-6
 EEC-No : 200-871-9
- 1.2 Company :
 Honeywell
 AlliedSignal Europe N.V.
 Grauwmeer 1,
 Haasrode Research Park
 B-3001 Heverlee
 Belgium
 Tel : (32) 16 391 211 Fax : (32) 16 400 039
- 1.3 Emergency telephone number: (32) 16 391 391

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Symbol(s) : & R-phrase(s)
chlorodifluoromethane	75-45-6	100	R59

3. HAZARDS IDENTIFICATION

- 3.1 Most important hazards: Dangerous for the ozone layer

4. FIRST AID MEASURES

- 4.1 Eyes : Rinse immediately with plenty of water for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.
- Skin : liquefied gas, may cause frostbite. Wash frostbitten areas with plenty of water. Do not remove clothing. Wash off with warm water. If skin irritation persists, call a physician.
- Inhalation : Move to fresh air in case of accidental inhalation of vapours. Oxygen or artificial respiration if needed. Do not apply artificial respiration if patient is breathing. Consult a physician after significant exposure. Do not give adrenaline or similar drugs.
- Ingestion : Do not induce vomiting without medical advice. Call a physician immediately. Do not give drugs from adrenaline-ephedrine group.
- General advice : Consult a physician after significant exposure.

5. FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media:
 The product itself does not burn. Extinguish with carbon dioxide, dry chemical, foam or waterspray. Use extinguishing measures that are appropriate to the environment.
- 5.2 Extinguishing media which must not be used for safety reasons:
 None
- 5.3 Specific hazards: Possibility of generating hazardous reactions during a fire due to the presence of F and/or Cl groups. Fire or intense heat may cause violent rupture of packages.

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- 5.4 Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.
 5.5 Specific methods: ^{protective suit.} Standard procedure for chemical fires. In the event of fire, cool tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions: Use personal protective equipment. Evacuate personnel to safe areas. Do not breath vapours or spray mist. Ensure adequate ventilation.
 6.2 Methods for cleaning up: Shut off leaks if without risk. Solid evaporates. Ensure adequate ventilation.

7. HANDLING AND STORAGE

- 7.1 Handling: Keep away from heat and sources of ignition. Do not puncture or drop container. Provide sufficient air exchange and/or exhaust in work rooms.
 7.2 Storage: Keep containers tightly closed in a cool, well-ventilated place. Store in a cool and shaded area. Do not expose to temperatures above 50 °C. Keep tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Engineering measures:
 Ensure adequate ventilation, especially in confined areas.
- 8.2 Personal protection equipment:
- Respiratory protection: In case of insufficient ventilation wear suitable respiratory equipment, preferably a compressed airline breathing apparatus.
 - Hand protection: impervious butyl rubber gloves.
 - Eye protection: Wear as appropriate: safety glasses, goggles. Wear face-shield and protective suit for abnormal processing problems.
 - Skin and body protection: Chemical resistant apron, long sleeved clothing, safety shoes.
- 8.3 Exposure limit(s):
- US ACGIH TLV : Chlorodifluoromethane: 1000 ppm, 3540 mg/m³ (TWA)
 - US OSHA PEL : Chlorodifluoromethane: 1000 ppm, 3500 mg/m³ (TWA)
 - Honeywell :
 - MAK-Werte (D) : Monochlordifluormethan (R 22): 3600 mg/m³ TRGS 900 06/1999.
 - OEL (UK HSE) : Chlorodifluoromethane: 1000 ppm, 3590 mg/m³ (TWA)
 - MAC (Nederland) : Chloorfluorkoolwaterstoffen: Chloordifluomethaan (FC 22): 1000 ppm, 3600 mg/m³ MAC TWA (TGG)
 - VME (INRS France) : Chlorodifluorométhane (F 22): (VME) 1000 ppm, 3500 mg/m³
 - Hyg.Gransv.(Sweden) : Klordifluormetan (CFC 22, FREON 22): 500 ppm, 1800 mg/m³ (NGV)
 - European Union : Chlorodifluoromethane: 3600 mg/m³, 1000 ppm.(TLV)

9. PHYSICAL AND CHEMICAL PROPERTIES

- 9.1 Form : clear colourless Gas (as liquefied gas)
 9.2 Odour : slight ether-like
 9.3 pH (at °C) : neutral
 9.4 Boiling point/range : -40.8 °C 1013 hPa
 9.5 Melting point/range : -160 °C

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9.6	Flash point	:	Not applicable	°C	
9.7	Flammability (solid, gas)	:	Not applicable		
9.8	Autoignition temperature	:	Not applicable	°C	
9.9	Explosion limits	:	None	%vol	%vol
9.10	Oxidizing properties	:			
9.11	Vapour pressure (at 21 °C)	:	9384.1	hPa	
9.12	Relative density (at 25 °C)	:	1.21	g/cm3	
9.13	Water solubility	:	0.3 %	(1013 hPa)	
9.14	Solubility in other solvents	:	no data available		
9.15	Partition coefficient (n-octanol/water)	:	1.08 - 1.13		
9.16	Vapour density	:	3.0	(air = 1.0)	
9.17	Evaporation rate	:	>1	(CCl ₄ = 1.0)	
9.18	Other information	:	100% Volatile	(20 °C)	

10. STABILITY AND REACTIVITY

10.1	Stability:	Stable
10.2	Conditions to avoid:	Keep away from sources of ignition - No smoking. May give off toxic fumes in a fire, wear breathing apparatus.
10.3	Materials to avoid	alkaline earth metals, alkali metals, finely divided aluminium, zinc
10.4	Hazardous decomposition products:	halogenated compounds (acids,..), carbonyl halides

11. TOXICOLOGICAL INFORMATION

11.1	Acute toxicity :	LC50/4hr/ rat : >300,000 ppm
11.2	Irritation :	
11.3	Sensitization :	Cardiac sensitization : 50,000 ppm
11.4	Chronic toxicity:	Subchronic exposure no-observed-effect level (NOEL): 10,000 ppm

12. ECOLOGICAL INFORMATION

12.1	Mobility:	Aquatic toxicity is unlikely due to low solubility.
12.2	Ecotoxicity effects:	
12.3	Other information:	Ozone depletion potential; ODP; (R-11 = 1) = 0.05 Global warming potential (GWP) = 0.098

13. DISPOSAL CONSIDERATIONS

13.1	Waste from residues / unused products:	Offer surplus and non-recyclable solutions to a licensed disposal company. In accordance with local and national regulations. S59 - Refer to manufacturer/supplier for information on recovery/recycling.
	Contaminated packaging:	Do not reuse empty containers. Empty pressure vessels should be returned to the supplier.

14. TRANSPORT INFORMATION

UN No	1018		
ADR/RID	Proper shipping name	:	chlorodifluoromethane (R22)
	HI No	:	20
	UN No	:	1018
	Label	:	2
	Class & Item	:	2,2A

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IMDG	Proper shipping name	:	chlorodifluoromethane (R 22)			
	IMDG Page	:	2118	UN No	:	1018 Class : 2.2
	EmS	:	2-09	MFAG	:	350

15. REGULATORY INFORMATION

15.1 Classification according to European directive on classification of hazardous preparations 88/379/EEC

contains: chlorodifluoromethane
EEC No. 200-871-9R-phrase(s): R59 - Dangerous for the ozone layer.
S-phrase(s): S7/9 - Keep container tightly closed and in a well-ventilated place.
S23 - Do not breathe gas
S59 - Refer to manufacturer/supplier for information on recovery/recycling.**16. OTHER INFORMATION**

Revision : 2 (US SDS 26/07/95)

Changes were made in section(s) : 12. ECOLOGICAL INFORMATION
8. EXPOSURE CONTROLS / PERSONAL PROTECTION
15. REGULATORY INFORMATION

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