

SAFETY DATA SHEET

ACCORDING TO REGULATION 1272/2008 (CLP/GHS)

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1	Product identifier	
	Product name	Difluorochloromethane (Hladon 22)
	Chemical name	Difluorochloromethane
	Trade name	Hladon 22
	Alternative names	Chlorodifluoromethane, Freon 22
	Chemical formula	CHCLF ₂
	Structural formula	$\begin{array}{c} \text{F} \\ \\ \text{CL} - \text{C} - \text{H} \\ \\ \text{F} \end{array}$
	EC No.	200-871-9
	CAS No.	75-45-6
1.2	Relevant identified uses of the substance or mixture and uses advised against	
	Identified use(s)	Used for organic synthesis industry and as refrigerant.
	Uses advised against	Only for industrial or professional use.
1.3	Details of the Supplier of the safety data sheet	
1.3.1	Manufacturer	Joint Stock Company "HaloPolymer Perm" JSC "HaloPolymer Perm" str. Lasvinskaya, 98, 614042, Perm, the Russian Federation.
	Telephone	+7(342) 250-61-50
	Fax	+7(342) 250-61-06, 250-61-51
	Website	www.halopolymer.ru
1.3.2	Only representative of a non-Community manufacturer	URALCHEM Assist GmbH Johannssenstrasse 10 30159, Hannover, Germany
	Telephone	+49(0)511 45 99 445
	Fax	+49(0)511 45 99 446
	E-mail	info@uralchem-assist.de
1.4	Emergency telephone number	
	Manufacturer/supplier:	+7-342-282-85-45 [24 hours.]
	European emergency number:	112
		Consult the national official advisory body if necessary.

2. SECTION 2: HAZARDS IDENTIFICATION

2.1	Classification of the substance or mixture	
2.1.1	Regulation (EC) No.1272/2008	H280: Gas under pressure. H420: Harms public health and the environment by destroying ozone in the upper atmosphere.
2.2	Other hazards	Liquefied gas under pressure. Destroys the ozone layer. In high concentrations it irritates the respiratory tract, has a weak narcotic, suffocating effect. Cylinders may explode if heated. May cause frostbite.
2.3	Additional information	See also Section: 16.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Product identifier type in accordance with Article 18(2) of Regulation (EC) No.1272/2008	Identifier number	Identification name	Weight % content (or range)	EC Number
CAS number	75-45-6	Difluorochloromethane	≥ 99.9	200-871-9

4. SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Inhalation

Fresh air, rest, warm. Inhalation of oxygen. At evident sleepiness, heavy breathing – hospitalization.

Skin contact

Rinse with water. In case of contact of liquefied gas with skin, apply antiseptic dressing. Seek medical advice, if necessary.

Eye contact

Flush with plenty of running water. Seek oculist's advice, if necessary.

Ingestion

Unlikely route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Headache, dizziness, shortness of breath, loss of balance and coordination, convulsive twitches, tremor, numb feeling in the hands, salivation, irritation of upper respiratory tract, eyes, chest pain, weakness.

4.3 Indication of immediate medical attention and special treatment needed

Frostbite of skin and eyes.

No special requirements.

5. SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing media according to main source of ignition.

Unsuitable extinguishing media

Not established.

5.2 Special hazards arising from the substance or mixture

May decompose in a fire forming high-toxic products: Tetrafluoroethylene, Hydrogen Fluoride, Hydrogen Chloride.

5.3 Advice for firefighters

Fire-fighters should wear fully protective clothing including self-contained breathing apparatus. Chemical protection suit.

5.4 Additional information

Keep containers cool by spraying with water if exposed to fire.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For information on personal protection see. Section 8. Avoid direct contact with the substance. Use personal protective equipment. Ensure supply-and-exhaust ventilation and local one. Drive the vehicle with the product to a place of safety. Make leave unauthorized persons. Enter the danger zone using the protective equipment. Stay upwind. Avoid low areas. Provide first aid to victims. For emergency responders – self-contained breathing apparatus. Chemical protection suit.

6.2 Environmental precautions

Sealing of process equipment and shipping containers, contaminated wastewater treatment using special treatment facilities. Capture of contaminated gas emissions and their purification by condensation, adsorption.

6.3 Methods and material for containment and cleaning up

Call the emergency response team. Eliminate the leakage with caution. When the gas leakage rate is too high, let gas go out completely. Avoid contact of liquid gas with combustible substances. Isolate the area until gas dispersal. Use sprayed water to disperse gas.

- 6.4 Reference to other sections See also Section: 8 and 13.
6.5 Additional Information None.






7. SECTION 7: HANDLING AND STORAGE

- 7.1 **Precautions for safe handling** Use only for industrial use and only outdoors or in a well-ventilated premises. Avoid gas inhalation. Ensure pressurization of processing equipment and consumer containers. Do not eat, drink or smoke during work. Maintain personal hygiene. Provide supply-and-exhaust ventilation and local one.
- 7.2 **Conditions for safe storage, including any incompatibilities**
 Storage temperature Store in warehouses or under roof providing sun protection, away from heat and open flame.
 Storage life Temperature is not above 52 °C.
 Incompatible materials Two years from the date of production.
 Combustible materials.
- 7.3 **Specific end use(s)** Used for organic synthesis industry and as refrigerant.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters
8.1.1 Occupational Exposure limit values

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note:
Difluorochloromethane	75-45-6	-	3000	-		Vapours

- 8.1.2 **Biological limit value** No information available.
- 8.1.3 **PNECs and DNELs** No information available.
- 8.2 **Exposure controls**
8.2.1 **Appropriate engineering controls** Provide supply-and-exhaust ventilation and local one. Ensure pressurization of processing equipment.
- 8.2.2 **Personal protection equipment**
 Eye/face protection  Eye protection (safety glasses, mask).
 Hand protection  Rubber gloves.
 Respiratory protection  Air supplied breathing apparatus.
 Skin protection  Protective clothing (woolen suit, cotton overalls).
 Hygienic measures  Observe the general industrial hygiene regulations. Take a hygienic shower at the end of working day. Eating, drinking, and smoking are prohibited in the work area.
- 8.2.3 **Environmental Exposure Controls** Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Gas
Colour	Colourless
Odour	Weak odour of chloroform
Odour threshold (ppm)	Not established
pH (Value)	Not established
Melting point (°C)	-160°C
Boiling point (°C)	-40.8°C
Critical temperature (°C)	96.13
Critical pressure (MPa)	4.986
Critical density (kg/m ³)	512.8
Flash point (°C)	Incombustible gas
Ignition temperature (°C)	Incombustible gas
Density at -69 °C (g/cm ³)	1.49
Density of liquid hladon at 0 °C (kg/m ³)	1285
Density of liquid hladon at 25 °C (kg/m ³)	1192
Solubility in water at 20 °C (mg/l)	3000
Solubility (in other substances)	In diethyl ether, acetone, trichloromethane, fats
Auto-ignition temperature (°C)	Incombustible gas
Decomposition temperature (°C)	Above 400 °C
Partition coefficient: n-octanol/water	log Pow 1.13
Explosive properties	Non-explosive
9.2 Other information	No information available

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Chemical stability	Stable under normal operating conditions.
10.2 Possibility of hazardous reactions	With combustible materials, open fire.
10.3 Conditions to avoid	When contacting with the hot surfaces or flame, the substance decomposes forming highly toxic products.
10.4 Incompatible materials	Combustible materials.
10.5 Hazardous decomposition product(s)	Tetrafluoroethylene, Hydrogen Fluoride, Hydrogen Chloride.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Acute inhalation toxicity: LC ₅₀ 1000000 mg/m ³ / 2h (rat) (IUCLID) Acute oral toxicity: Not available. Acute dermal toxicity: Not available.
Inhalation	The product has low toxicity if inhaled. In high concentrations it acts as narcotic and asphyxiant.
Skin contact	When contacting the liquid product, it causes frostbite.
Eye contact	When contacting the liquid product, it causes frostbite.
Skin corrosion/irritation	Weak skin irritation.
Eye damage/irritation	Weak eye irritation.
Respiratory or skin sensitization	The substance is not classified as skin sensitizer.
Mutagenicity	Not identified as confirmed (IARC).
Carcinogenicity	Not identified as confirmed.
Reproductive toxicity	Not identified as confirmed.
STOT - single exposure	Rapid evaporation of liquid may cause frostbite.
STOT - repeated exposure	May cause injury of central nervous and cardiovascular systems, kidneys, respiratory tract.
11.2 Other information	Not available.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1	Toxicity	Acute toxicity to: Fish: LC ₅₀ = 777 mg/l/96h Water flea: EC ₅₀ = 433 mg/l/48h Not degradable (0% BOD in 28 days).
12.2	Persistence and degradability	Low partition coefficient (octanol-water) indicates the absence of bioaccumulation.
12.3	Bioaccumulative potential	
12.4	Mobility in soil	Not available.
12.5	Results of PBT and VPVB assessment	Not available.
12.6	Other adverse effects	The substance affects the ozone layer.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1	Waste treatment methods	Recycling. Returnable containers.
13.2	Additional information	None.


14. SECTION 14: TRANSPORT INFORMATION

14.1	UN number	1018
14.2	Proper shipping name	Chlorodifluoromethane (REFRIGERANT GAS R22)
14.3	Transport hazard class(es)	As per ADR/RID: hazard class-2.2, classification code - 2A, hazard sign - 2.2. As per IMDG: hazard class - 2.2. As per ICAO/IATA: hazard class - 2.2.
14.4	Packing group	None.
14.5	Special precautions for user	Hazard code - 20.
14.6	Additional information	Not available.

15. SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1	EU regulations Authorizations and/or restrictions on use	The substance is listed in Annex 1 of Regulation (EC) №1005/2009 (ozone-depleting potential - 0.055).
15.2	Chemical Safety Assessment	Not available.

16. SECTION 16: OTHER INFORMATION

16.1	Classification of the substance or mixture	Regulation (EC) No.1272/2008 (CLP/GHP): classified as dangerous for supply/use.
16.1.1	Label elements Product name Hazard pictogram (-s)	Difluorochloromethane (Hladon 22) 
	Signal word(s) Hazard statement(s)	Warning. H280: Contains gas under pressure: may explode if heated. H420: Harms public health and the environment by destroying ozone in the upper atmosphere.
	Precautionary statement(s)	P273: Avoid release to the environment. P410+P403: Protect from sunlight. Store in a well ventilated place.
	Additional information	None.

Information contained in this SDS or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purposes. HaloPolymer Perm OJSC gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. HaloPolymer Perm OJSC accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed. You should not use the product with the purposes other than those specified, without consultation with us. It is the Customer's responsibility to make an assessment of this product and use it observing safety precautions and requirements of relevant laws and legal norms. The Buyer of the product intended for a third party's usage is obliged to take all reasonable steps to afford access to all information contained in this SDS for any person making use of this product. An Employer must inform employees and other persons of the dangers they can be incurred and precautionary measures they should apply.

Annex to the extended Safety Data Sheet (eSDS)

Not available.