

Emergency Telephone Numbers:

(817) 636-2089 RHOME PLANT
(800) 424-9300 CHEMTREC

Product Name: Chlorodifluoromethane, R22

Company identification: Diversified Pure Chem
11050 S. Hwy 287
Rhome, TX 76078

SECTION I PRODUCT IDENTIFICATION / COMPANY INFORMATION

Product name Chlorodifluoromethane, R22
Chemical formula CHClF₂

SECTION II COMPOSITION / DATA ON COMPONENTS

GHS Classification: Gases Under Pressure, Liquefied Gas, H280
Hazardous to the Ozone Layer, 1, H420

**GHS Label Elements
Symbol(s):**



Signal Words: Warning

GHS Hazard Statements:

Physical Hazards

H280 : Contains gas under pressure; may explode if heated.
Gas may reduce oxygen in confined spaces.

Health Hazards

H420 : Harms public health and the environment by destroying ozone in the upper atmosphere.

Environmental Hazards

H420 : Harms public health and the environment by destroying ozone in the upper atmosphere.

Other Hazards

Rapid evaporation of the liquid may cause frostbite. Vapors are heavier than air and can cause suffocation by reducing available oxygen. May cause cardiac arrhythmia.

GHS Precautionary Statements

Storage: P410+P403 : Protect from sunlight. Store in a well-ventilated place.

Disposal: P502 : Refer to manufacturer/supplier for information on recovery/recycling.

SECTION III COMPOSITION / INFORMATION ON INGREDIENTS

Material	CAS Number	EINECS	%
Chlorodifluoromethane, R22*	75-45-6	200-871-9	100

*Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

SECTION IV FIRST AID MEASURES

Emergency First Aid Procedures**Inhalation**

If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Skin Contact

In case of contact, flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

Eye Contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Ingestion

Ingestion is not considered a potential route of exposure.

Notes To Physicians

THIS MATERIAL MAY MAKE THE HEART MORE SUSCEPTIBLE TO ARRHYTHMIAS. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

Potential Health Effects

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness or death. Intentional misuse or deliberate inhalation can be fatal. Vapors are heavier than air and pose a threat of suffocation if trapped in enclosed or low places. Liquid contact can cause frostbite. Inhalation may cause dizziness, headache, confusion, incoordination, and loss of consciousness.

Immediate effects of overexposure by inhalation may include central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Gross overexposure may cause irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death. Other effects include fatality from gross over-exposure.

Short-term overexposure by skin contact may cause frostbite, if liquid or escaping vapor contacts the skin. Repeated and/or prolonged exposure may cause defatting of the skin with itching, redness or rash. Data to evaluate the skin permeation hazard of this compound are insufficient. There are no reports of human sensitization.

Contact with the vapor may cause eye irritation with tearing, pain or blurred vision.

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the central nervous system, cardiovascular system.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

SECTION V FIRE FIGHTING MEASURES

Flammable Properties

Chlorodifluoromethane is not flammable at ambient temperatures and atmospheric pressure. However, chlorodifluoromethane has been shown in tests to be combustible at pressures as low as 60 psig at ambient temperature when mixed with air at concentrations of 65 volume % air. Experimental data have also been reported which indicate combustibility of chlorodifluoromethane in the presence of certain concentrations of chlorine. Other burning materials may cause chlorodifluoromethane to burn weakly.

Safety Data Sheet

Fire Fighting Measures

Autodecomposition 632 C (1170 F)

Suitable Extinguishing Media:

As appropriate for combustibles in area. Extinguishant for other burning material in area is sufficient to stop burning.

Fire Fighting Procedures:

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Use water spray or fog to cool containers. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or contents are released under fire conditions. Water runoff should be contained and neutralized prior to release.

Unusual Fire and Explosion Hazards:

Contents under pressure. Containers may rupture under fire conditions. Decomposition may occur.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Chlorine, Carbonyl fluoride, Carbon monoxide, Phosgene, Hydrogen Chloride, Hydrogen Fluoride.

SECTION VI ACCIDENTAL RELEASE MEASURES

Steps To Be Taken If Material Is Released or Spilled

Ventilate area, especially low or enclosed places where heavy vapors might collect. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. If confined space - use self contained breathing apparatus. Remove open flames. Consult local fire authorities. Use self-contained breathing apparatus (SCBA) for large spills or releases. **** COMPLY WITH ALL STATE AND LOCAL REGULATIONS ****

Personal Precautions: Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons downwind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant. Protect body against contact with liquid.

Environmental Precautions: Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods for Containment and Clean-Up: Notify relevant authorities in accordance with all applicable regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

SECTION VII HANDLING AND STORAGE

Precautions for safe handling: Comply with state and local regulations. Use good personal hygiene practices and wear appropriate personal protective equipment.

Use with sufficient ventilation to keep employee exposure below recommended limits. Chlorodifluoromethane should not be mixed with air for leak testing. In general, it should not be used or allowed to be present with high concentrations of air above atmospheric pressure. Contact with chlorine or other strong oxidizing agents should also be avoided.

Safety Data Sheet

Contents are under pressure. Gases can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well ventilated areas. Store only in approved containers.

SECTION VIII EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

PEL (OSHA) None Established
 TLV (ACGIH) 1,000 ppm, 3,540 mg/m³, 8 Hr. TWA, A4

Engineering Controls Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

Personal Protection

Eye/Face Protection: The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

Skin Protection: Impervious, insulated gloves recommended.

Respiratory Protection: Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large release occurs. A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH). A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor:	CLEAR, COLORLESS LIQUEFIED GAS WITH A SLIGHT ETHEREAL ODOR.	
Odor Threshold:	No data	
pH:	Not Applicable	
Melting / Freezing Point:	No data	Initial Boiling Point / Range: -40.8 °C (-41.4 °F)
Flash Point (Method) :	Not Applicable	Evaporation Rate: > 1 (ETHYL ETHER = 1.0)
Lower Explosion Limit:	Not Applicable	Upper Explosion Limit: Not Applicable
Vapor Pressure @ 77 °F:	151 PSIG	Vapor Density (air = 1.00): 3.03
Liquid Density @ 77 °F:	1.194 g/cm ³	Solubility in Water @ 77 °F: 0.3%
Percent Volatile by Volume :	100%	Auto-ignition temperature: No data
Decomposition Data:	No data	Viscosity: No data

SECTION X STABILITY AND REACTIVITY

Chemical Stability

Material is stable. However, avoid open flames and high temperatures.

Safety Data Sheet
Incompatibility With Other Materials

Incompatible with alkali or alkaline earth metals - powdered Al, Zn, Be, etc. Contact with chlorine or other strong oxidizing agents should be avoided

Decomposition

Decomposition products are hazardous. R-22 can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides. These materials are toxic and irritating. Contact should be avoided.

Polymerization

Polymerization will not occur.

SECTION XI TOXICOLOGICAL INFORMATION

Chlorodifluoromethane (HCFC-22)

Dermal	:	not applicable
Oral	:	not applicable
Inhalation 4 h LC50	:	220000 ppm, rat
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	50000 ppm, dog Cardiac sensitization
Skin irritation	:	No skin irritation, rabbit Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	:	No eye irritation, rabbit Not expected to cause eye irritation based on expert review of the properties of the substance.
Skin sensitization	:	Did not cause sensitization on laboratory animals, guinea pig Not expected to cause sensitization based on expert review of the properties of the substance.
Repeated dose toxicity	:	Inhalation mouse No toxicologically significant effects were found.
Carcinogenicity	:	An increased incidence of tumors was observed in some laboratory animals but not in others. Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity	:	Did not cause genetic damage in animals. Did not cause genetic damage in cultured mammalian cells. Experiments showed mutagenic effects in cultured bacterial cells.
Reproductive toxicity	:	Evidence suggests the substance is not a reproductive toxin in animals.
Teratogenicity	:	Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Further information	:	Cardiac sensitization threshold limit: 175000 mg/m ³

SECTION XII ECOLOGICAL INFORMATION

Chlorodifluoromethane (R-22)

48 hour EC50	:	433 mg/L Daphnia magna
96 hour LC50	:	777 mg/L Zebra fish
Biodegradation	:	according to the results of test of biodegradability, this substance is not readily biodegradable.

Bioaccumulative Potential: Not expected as having the potential to bioaccumulate.

Mobility in Soil: Due to the extreme volatility of liquefied gases, air is the only environmental compartment in which they will be found.

Other Adverse Effects: None anticipated.

Further information on ecology

Additional ecological
Information

: This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82. Section 611 requires the following label text on all shipments of this product:

Warning: Contains Chlorodifluoromethane (HCFC-22),

a substance which harms public health and environment by destroying ozone in the upper atmosphere.

Refer to sections 610 and 612 for list of acceptable and unacceptable uses for this product.

Ozone depletion factor 0.055 (R11=1)
Global warming factor 1810 (CO2=1)

SECTION XIII DISPOSAL INFORMATION

Waste Disposal

Must not be disposed of into the atmosphere! Comply with Federal, State, and local regulations. Reclaim by distillation or remove to a permitted waste disposal facility. **** Comply With All State and Local Regulations ****

SECTION XIV TRANSPORT INFORMATION

Transport Information

SHIPPING INFORMATION - DOT/IMO/IATA

UN1018, CHLORODIFLUOROMETHANE
2.2, NONFLAMMABLE GAS

Safety Data Sheet
Other transport information

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking.
- valve outlet cap nut or plug (where provided) is correctly fitted.
- valve protection device (where provided) is correctly fitted.
- there is adequate ventilation, and compliance with applicable regulations.

SECTION XV REGULATIONS
Regulatory Information
U.S. FEDERAL REGULATIONS

TSCA Inventory Status	:	Reported/Included.
SARA 302 Components	:	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
	:	Chlorodifluoromethane 75-45-6

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute	Yes
Chronic	No
Fire	No
Reactivity	No
Pressure	Yes

California Prop. 65	:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
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HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance - No
 CERCLA Hazardous Substance - No

SECTION XVI OTHER INFORMATION
NPCA - HMIS RATINGS

HEALTH	1
FLAMMABILITY	0
REACTIVITY	1
PERSONAL PROTECTION	-

(Personal Protection Information To Be Supplied By The User)

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained. The information given is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.