



# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 12/03/2014

Version:

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance  
Trade name : JOHNSEN'S R-22 30 POUND CYLINDER  
CAS No : 75-45-6  
Product code : 6230  
Formula : CHCIF2  
Synonyms : A22 / algeon 22 / algofrene 22 / algofrene 6 / algofrene type 6 / arcton 22 / arcton 4 / Chlorodifluoromethane (refrigerant gas R 22) / daiflon 22 / difluorochloromethane / difluoromonochloromethane / dymel 22 / electro-CF22 / eskimon 22 / F22 / FC 22 / FKW22 / flugene 22 / fluorocarbon 22 / forane 22 / formacel S / FRIGEN 22 / FRIGEN R22 / fron 22 / genetron 141 / genetron 22 / halocarbon R22 / haltron 22 / HCFC-22 / HCHC 22 / isceon 22 / isotron 22 / khaladon 22 / khladon 22 / methane, chlorodifluoro- / monochlorodifluoromethane / propellant 22 / R22 / refrigerant 22 / refrigerant R 22 / solkane 22 / ucon 22 / ucon 22/halocarbon 22 / uconn 22

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Refrigerant

#### 1.3. Details of the supplier of the safety data sheet

Technical Chemical Company  
P.O. BOX 139  
Cleburne, Texas 76033  
T 817-645-6088

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC 24 Hour 1-800-424-9300, 1-703-527-3887 (International)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Liquefied gas H280

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS04

Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H280 - Contains gas under pressure; may explode if heated

Precautionary statements (GHS-US) :

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

#### 2.3. Other hazards

Other hazards not contributing to the classification

: Asphyxiant in high concentrations. . Contains gas under pressure; may explode if heated. Intentional misuse and inhalation abuse may cause cardiac or central nervous systems effects. Warning. May Cause frostbite in contact with skin. May Cause frostbite in contact with skin. (Liquid form can be ejected if the aerosol can is not held upright during use.) Warning. This product dispenses liquid. Liquid may drip onto skin causing frostbite, blistering, red skin. WARNING.

#### 2.4. Unknown acute toxicity (GHS-US)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Name : Chlorodifluoromethane  
CAS No : 75-45-6  
EC no : 200-871-9

# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Name	Product identifier	%	Classification (GHS-US)
Chlorodifluoromethane (Main constituent)	(CAS No) 75-45-6	100	Liquefied gas, H280

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Take victim to a doctor if irritation persists. In case of frostbites: Wash immediately with lots of water (15 minutes)/shower. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	: Not applicable.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries	: Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/injuries after inhalation	: EXPOSURE TO HIGH CONCENTRATIONS: Headache. Dizziness. Nausea. Disturbances of consciousness. Ringing in the ears. Mental confusion. Coordination disorders. Accelerated heart action. Disturbances of heart rate. Respiratory difficulties.
Symptoms/injuries after skin contact	: Frostbites.
Symptoms/injuries after eye contact	: Visual disturbances. Frostbites.
Symptoms/injuries after ingestion	: Not applicable.
Chronic symptoms	: No effects known.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Adapt extinguishing media to the environment.
Unsuitable extinguishing media	: No unsuitable extinguishing media known.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Non combustible.
Explosion hazard	: INDIRECT EXPLOSION HAZARD. Heat may cause pressure rise in tanks/drums: explosion risk. Reactions with explosion hazards: see "Reactivity Hazard".
Reactivity	: Decomposes slowly on exposure to water (moisture). Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride, phosgene, hydrofluoric acid). Violent to explosive reaction with (some) metals and their compounds: release of heat.

### 5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: consider evacuation.
Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion. Dilute toxic gases with water spray.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.
Other information	: NFPA Aerosol Level 1.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Remove ignition sources.
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#### 6.1.1. For non-emergency personnel

Protective equipment	: Insulating gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus.
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# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Emergency procedures : Keep upwind. Mark the danger area. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Wash contaminated clothes. Large spills/in confined spaces: consider evacuation.

### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Tip the container on one side to stop the leakage. Do not spray water on unheated tank walls.

Methods for cleaning up : Take up liquid spill into inert absorbent material. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use.

Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Keep away from naked flames/heat. Observe normal hygiene standards. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

Hygiene measures : Wash affected areas thoroughly after handling. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Storage temperature : < 52 °C

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. metals.

Storage area : Store in a dry area. Ventilation at floor level.

Special rules on packaging : SPECIAL REQUIREMENTS: with pressure relief valve. watertight. clean. correctly labelled. meet the legal requirements.

Packaging materials : SUITABLE MATERIAL: steel. stainless steel. monel steel. lead. iron. copper. tin. bronze. nickel. MATERIAL TO AVOID: zinc. steel with plastic inner lining.

### 7.3. Specific end use(s)

Follow Label Directions.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
USA ACGIH	ACGIH STEL (ppm)	1000 ppm

### 8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station. Local exhaust ventilation, vent hoods.

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Safety glasses.



# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Materials for protective clothing	: GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: No data available.
Hand protection	: Insulated gloves.
Eye protection	: Safety glasses.
Skin and body protection	: Protective clothing.
Respiratory protection	: High vapour/gas concentration: self-contained respirator.
Other information	: Do not eat, drink or smoke during use.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Liquefied gas.
Molecular mass	: 86.47 g/mol
Color	: Colourless.
Odor	: Mild odour. Sweet odour. Medicinal odour. Ether-like odour.
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -160 °C
Freezing point	: No data available
Boiling point	: -41 °C
Flash point	: Not applicable
Critical temperature	: 96 °C
Auto-ignition temperature	: Not applicable
Decomposition temperature	: 480 °C
Flammability (solid, gas)	: No data available
Vapor pressure	: 9100 hPa
Vapor pressure at 50 °C	: 19400 hPa
Critical pressure	: 49770 hPa
Relative vapor density at 20 °C	: No data available
Relative density	: 1.20
Specific gravity / density	: 1200 kg/m <sup>3</sup>
Solubility	: Poorly soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in chloroform. Soluble in chlorinated hydrocarbons. Water: 0.3 g/100ml Ethanol: soluble Ether: soluble Acetone: soluble
Log Pow	: 1.08 - 1.13
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

#### 9.2. Other information

Minimum ignition energy	: Not applicable
VOC content	: 0 %
Other properties	: Gas/vapour heavier than air at 20°C.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Decomposes slowly on exposure to water (moisture). Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride, phosgene, hydrofluoric acid). Violent to explosive reaction with (some) metals and their compounds: release of heat.

#### 10.2. Chemical stability

Unstable on exposure to moisture.

#### 10.3. Possibility of hazardous reactions

Not established.

# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Toxic fume. . Carbon monoxide. Carbon dioxide.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

JOHNSEN'S R-22 30 POUND CYLINDER ( f )75-45-6	
LC50 inhalation rat (mg/l)	790 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	220000 ppm/4h (Rat; Literature study)

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified

JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)	
IARC group	3

Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : Not classified  
Specific target organ toxicity (repeated exposure) : Not classified  
Aspiration hazard : Not classified  
Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.  
Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Headache. Dizziness. Nausea. Disturbances of consciousness. Ringing in the ears. Mental confusion. Coordination disorders. Accelerated heart action. Disturbances of heart rate. Respiratory difficulties.  
Symptoms/injuries after skin contact : Frostbites.  
Symptoms/injuries after eye contact : Visual disturbances. Frostbites.  
Symptoms/injuries after ingestion : Not applicable.  
Chronic symptoms : No effects known.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Dangerous for the environment.  
Ecology - air : Classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5.  
Ecology - water : Not harmful to fishes (LC50(96h) >1000 mg/l). Slightly harmful to bacteria. Not harmful to aquatic organisms (EC50 >1000 mg/l).

JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)	
LC50 fish 1	> 1000 mg/l (96 h; Pisces; Lethal)
LC50 other aquatic organisms 1	> 1000 mg/l (96 h)
LC50 fish 2	400 mg/l (24 h; Poecilia reticulata)
TLM fish 1	> 1000 ppm (96 h; Pisces)
Threshold limit other aquatic organisms 1	> 1000 mg/l (96 h)

### 12.2. Persistence and degradability

JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)	
Persistence and degradability	Not readily biodegradable in water.

### 12.3. Bioaccumulative potential

JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)	
Log Pow	1.08 - 1.13
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 12.4. Mobility in soil

#### JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)

Surface tension	0.019 N/m (-40 °C)
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### 12.5. Other adverse effects

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Refer to manufacturer/supplier for information on recovery/ recycling.

Additional information : LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

US DOT (ground): UN1018, Chlorodifluoromethane (Refrigerant gas R 22), 2.2

ICAO/IATA (air): UN1018, Chlorodifluoromethane (Refrigerant gas R 22), 2.2

IMO/IMDG (water): UN1018, Chlorodifluoromethane (Refrigerant gas R 22), 2.2

Special Provisions: T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Chlorodifluoromethane (Refrigerant gas R 22)

Department of Transportation (DOT) Hazard Classes : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas



DOT Special Provisions (49 CFR 172.102) : T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 306

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

### 14.3. Additional information

Other information : No supplementary information available.

### Overland transport

Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 20

Classification code (ADR) : 2A

Hazard labels (ADR) : 2.2 - Non-flammable compressed gas



Orange plates : 

# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Tunnel restriction code (ADR) : C/E

### Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

EmS-No. (1) : F-C

EmS-No. (2) : S-V

### Air transport

DOT Quantity Limitations Passenger aircraft/rail : 75 kg  
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 150 kg  
CFR 175.75)

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard Immediate (acute) health hazard
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### 15.2. International regulations

#### CANADA

#### JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas
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### EU-Regulations

No additional information available

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Press. Gas

Ozone

Full text of H-phrases: see section 16

### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

N; R59

Full text of R-phrases: see section 16

#### 15.2.2. National regulations

No additional information available

### 15.3. US State regulations

#### JOHNSEN'S R-22 30 POUND CYLINDER (75-45-6)

State or local regulations	U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List
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## SECTION 16: Other information

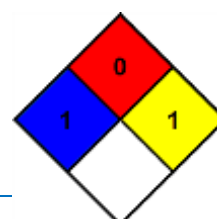
Other information : None.

Full text of H-phrases: see section 16:

Liquefied gas	Gases under pressure Liquefied gas
H280	Contains gas under pressure; may explode if heated

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 - Materials that will not burn.



# JOHNSEN'S R-22 30 POUND CYLINDER

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

### HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard

Physical : 1 Slight Hazard

Personal Protection : B

SDS US (GHS HazCom 2012) - TCC

*The Supplier identified in Section 1 of this MSDS has evaluated this product and certifies it to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission, and where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No other testing is required to certify compliance with the above. The date of manufacture is stamped on the product*

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